CURRICULUM VITAE

Isabel Maria Mercês Ferreira

JULY, 2023

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CURRICULUM VITAE

Personal information

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NOVA SST URL	https://sites.fct.unl.pt/energymaterials/home
NOVA Research	https://novaresearch.unl.pt/en/persons/isabel-maria-mercês-ferreira
ResearcherID:	G-3903-2011
Scopus Author ID:	7102135213
ORCID ID:	0000-0002-8838-0364
Google Academic	http://scholar.google.pt/citations?user=IGFiwGcAAAAJ&hl=pt-PT

ACADEMIC DEGREES

- **December 2018, Aggregation** in **"Materials for energy conversion, thermoelectric materials and devices"**, at Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa.
- **October 2002**, **PhD** in "***Silício hidrogenado amorfo e nanocristalino produzido pela técnica de HWPA-CVD"*** - Hydrogenated Silicon amorphous and nanocrystalline produced by HWPA-CVD Technique, Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, in the field of Materials Engineering, specialization in Optoelectronics and Microelectronics.
- **July 1994**, "***Provas de Aptidão Pedagógica e Capacidade Cientifica***", public examination to pass from Assistant 1st stage to Assistant, at Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, passed with *very good* for the work entitled "Production and characterization of thin films based in the technology of silicon and its alloys".
- **December 1989**, ***Dipl. Ing. in Physics and Materials Engineering*** (Option Materials - Specialization in Microelectronics and Energy Conversion), with a grade of 14/20, at the Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa. Acquired knowledge in: physical, chemical and structural properties of polymers, semiconductors, metals, composites, glasses and ceramics materials, besides management and quality control, processing technologies which includes thin film technologies, microelectronic processes and energy conversion and conservation.

PROFESSIONAL ACTIVITY

Activity at the Department of Materials Science (DCM) at "Faculdade de Ciências e Tecnologia da Universidade NOVA de Lisboa" (FCT-NOVA)

2018 – present Associate Professor with aggregation

2013 – 2018	Associate Professor – position of merit.
2002 – 2013	Assistant Professor
1994 – 2002	Assistant
1990 – 1994	Assistant 1st stage
1988 – 1990	Monitor: collaboration in lecturing practical classes of Semiconductor Materials, Microelectronics, Solid State Electronics and Energy Conversion, as a student of Physics and Materials Engineering at FCT-NOVA

ACADEMIC MANAGEMENT ACTIVITY

2023 – present	Member of the scientific board of PhD program in Bioenergy
2021 – present	Member of the scientific board of FCT-NOVA
2013 – 2022	Member of the scientific board of Master Course in Materials Engineering
2013 – 2015	Coordinator of the Master Course in Micro and Nanotechnologies of FCT-NOVA
2002 – 2014	Member of the executive board of DCM – FCT-NOVA
2008 – 2014	Vice-director of the Materials Research Centre-CENIMAT
2006 – 2013	Scientific responsible by the Electronic Materials and Nanotechnologies group
2002 – 2014	Member of the scientific board of DCM

SUMMARY OF THE R&D ACTIVITY

Scientific activity	Figures
Scientific papers -Scopus	238
Total Citations	5853
Total citations without self-citations	4806
Average citations per item	20.2
h Factor	38
Participation in Conferences	>90
Talks	>20
Patents	6
Organization of Conferences	4
Project's Coordination	3,8 M€
Project's Participation	4,1M€
Supervising of Postdoc	8
Supervising of PhD Students	7
Supervising of MSc students	>70
Participation in Academic Juries	12PhD+67MSc
Reviewer of ERC, FP7, AdI, proj.	>150
Referee of scientific papers	>100
International collaborations	>20
Administrative positions	>5
Prizes	5

SUMMARY OF THE TEACHING ACTIVITY

1. From 2011 to 2023

	Bachelor and Master in Materials Engineering and/or Micro and Nanotechnologies												
Curricular unit	**Semester**	**11-12**	**12-13**	**13-14**	**14-15**	**15-16**	**16-17**	**17-18**	**18-19**	**19-20**	**20-21**	**21-22**	**22-23**
Semiconductor materials	5th	T&P	T&P	T&P	T&P	T&P	Sabatical	T&P	T&P	T&P	T&P	T&P	T&P
Surfaces and interfaces	6th	T&P	T&P	T&P	T&P	T		T	T	T	T	T	T
Electronic of organic materials	6th		T&P	T&P	T&P								
Coatings and Thin Films Technologies	8th										T&P	T&P	T&P
Material for Energy Conversion and Conservation	6th	T&P	T&P	T&P	T&P	T&P		T&P	T&P	T&P			
Nanomaterials and Energy (optional)	MC*												T&P
Supervision of Master Students	10th	**4**	**6**	**3**	**8**	**6**	**3**	**4**	**6**	**2**	**5**	**4**	**6**
*offered to several Master courses (multi courses-MC)													

T&P - theoretical & problems/laboraty classes
T - theoretical

2. From 2002 (after PhD) to 2011

			Year								
			Old curricula			**Curricula reformulated**	**Bologna (1st+2nd cycle)**				
Course	**Theory**	**Practice**	**02/03**	**03/04**	**04/05**	**05/06**	**06/07**	**07/08**	**08/09**	**09/10**	**10/11**
Semiconductors Materials	X	X	6th S		6th S		5th S 1st Cycl.			SABBTICAL	
Solid State Electronics	X	X		4th S							
Conversion and conservation of Energy	X	X	7th S	7th S	7th S	5th S					
Optoelectronics	X	X				9th S					
Optoelectronic (module of **Liquid Crystals and Optoelectronics**)	X	X					1st S 2nd cycl.				
Ecomaterials (Optional)	X	X					2nd S 2nd cycl				
Thin Film Technologies (module of Advanced Laboratory Techniques)	X	X		8 th S	8 th S						
Materials for energy conversion and conservation (Optional)	X	X					5th S 1st cycl.				
Alternative Energies (Optional)	X	X					2º S 2nd cycl.				
Instrumentation techniques		X		5 th S							
SUPERVISION of MSc Thesis			**1**		**2**	**2**	**3**	**2**	**3**	**6**	**3**

MC1 - SCIENTIFIC MERIT

RESEARCH STATEMENT

Summary

Graduated in Physics and Materials Engineering (Materials Engineering branch) at FCT-NOVA between 1984-1990, starting her research career in 1989 as a 4th year student. After completing the 5th year of engineering, she did a 3-year internship as a first stage assistant, equivalent to a Master's thesis, and then as a PhD student. After her PhD in 2002, she was hired as an Assistant Professor until 2011, when she obtained a position as Associate Professor in Micro and Nanotechnologies at DCM/FCT-NOVA. The research activities have been integrated in the Materials for Electronics, Optoelectronics and Nanotechnologies (MEON) group, led by Professor Rodrigo Martins, since the beginning of the group's creation at the Center for Molecular Physics (Complex I, IST). After 2015, a period of autonomous research began, although integrated in the same group.

Career progress

1989

Contributed to the pioneering work carried out in Portugal in the field of amorphous silicon for electronic and optoelectronic applications.

1995

In the early nineties, there were no laboratories at DCM-FCT-NOVA. I was closely involved in the creation, redesign and acquisition of equipment for almost all the laboratories and research facilities that are now part of the MEON Group, including the first clean room and microelectronics processes laboratory in Portugal.

1998

After setting up the laboratories and equipment, research to complete the PhD was a priority and was completed in 2002. During my PhD I pioneered research into the deposition of microcrystalline thin films of silicon and silicon carbide using a combination of ***hot wire and plasma enhanced chemical vapour deposition***.

2002

As an Assistant Professor, I started a new phase of responsibility for lectures and therefore a period mainly dedicated to teaching (preparation of lectures and supporting material).
In addition, the DCM was going through a period of lack of students and a strong effort was needed to attract students to the Materials Engineering course. I was responsible for this activity, which included outreach to schools, taking students to visit laboratories at FCT-NOVA and giving demonstrations of materials engineering. During this period I also had a strong involvement in academic management activities as a member of the Executive Board of the DCM, collaborating in periodic reports, events organisation, equipment acquisition accumulating also with supervision of MSc and PhD students and research activities.

2008

In 2008, the situation stabilised and it was possible to become more involved in research. Thus, I started to coordinate the research activities in the group related to thin film technology applied to solar cells and launched R&D activities in the field of ***1-thermoelectric materials; 2-paper and bio-batteries; 3-development of organic semiconductors based on micro/nano-fibres; 4-sintering of nano-oxides for electronic applications; 5-activities related to nano-toxicology and magnetic nanoparticles for hyperthermia***. These activities have been supported by the projects I have coordinated or been responsible for: 9 projects (3 industrial; 3 from Fundação da Ciência e Tecnologia; 2 from I3N; 1 European); and the supervision of 9 researchers; 18 MSc theses; 7 PhD students; 2 post-docs.

2011

In 2011, I was awarded an Associate Professor position in Micro and Nanotechnologies and the research areas were expanded to include: ***6-Nanoparticles for applications in plasmonics and solar cells; 7-graphene synthesis and applications in supercapacitors***; ***8-3D printing of materials; 9-cellulose-based bio-batteries***. These research topics were introduced by me at the DCM during the supervision of MSc students. During this period I coordinated a European H2020 project with 7 partners (750k€ over 3 years), related to thin film thermoelectrics, ***pioneering transparent thermoelectric devices based on transparent and conducting oxides***.

2015

In 2015, I was able to consolidate my career with a ***consolidator grant*** from European Research Council (ERC) (€2 million for 5 years), which led me to do work independently in multidisciplinary areas involving the development of ***organic solar cells***, ***graphene-based capacitors***, and ***transparent thermoelectrics***. This activity remains the core of my research. At the same time, however, I initiated research into 3D printing of inorganic and organic materials at the DCM: ***3D printing of bone-like material*** *(supported by a P2020 (€151k for FCT-UNL over 3 years in collaboration with INNOVNANO)*; ***3D printing mimicking trachea***, and other prostheses. A background in Materials Science and Engineering allowed me to easily enter different research areas, from inorganic to organic materials. During this period I supervised and co-supervised different MSc theses of Biomedical Engineering students, starting research at DCM on ***cellulose-based drug delivery*** systems and devices, ***coatings with embedded drug for protection against prosthesis rejection;*** development of ***luminescent cellulose-based fibers,*** and ***synthesis of nanoparticles for the treatment of cancer*** with iron nanoparticles and hyperthermia.

2019

The Aggregation in Materials Science and Engineering was in the topic of thermoelectric materials and devices, and specifically in thin films that can also be applied in biomedical devices such as thermal energy harvesting and heating systems. In the last 3 years, the research has aimed to consolidate the topics started and to find applications for most of them, such as 3D printing of bones. Contacts were made with different companies to follow up the research results from this topic and from the ERC grants, which are still in the application phase for projects or contacts with different companies.

Career expectation

2023

In the coming years, I would like to focus on the development of materials by mimicking nature. My expectation is to consolidate the foundations that will allow the Department of Materials Science to lead research and student training in nature-based materials and their mimicry, including materials derived from waste. There is already some work and knowledge in this area, not only at DCM, but also at NOVA-SST and abroad, which can be combined to structure MSc and PhD programmes. From my point of view, to have a sustainable planet, waste should be avoided and all available sources should be used in the production of materials, and nature is the best source of knowledge and from whom we should learn.

KEY INNOVATIONS IN FUNCTIONAL MATERIALS AND APPLICATIONS

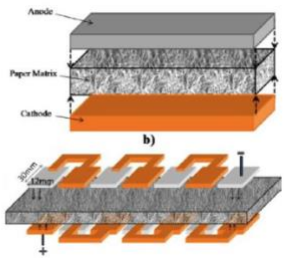
The main innovation in functional materials is presented below. A brief explanation and introduction to the origin of the work, the resulting publications and also the funding obtained to develop the research area is presented. Innovation is demonstrated by comparing the work with the state of the art in terms of number of publications and citations taken from Web Of Science (WOS) in the same year.

1. CELLULOSE BASED BATTERIES

Cellulose paper was first used as separator and electrolyte in thin film batteries by myself in 2008. The consolidation of this activity was done by an MSc student under my supervision and his work ended up with a proof of concept [Bruno Bras, MSc thesis FCT-UNL 2009]. As an innovative idea worldwide, national and international patents were filed, although not granted due to some problems in the formulation of the proposal. This achievement was widely publicised in the media and received an Honourable Mention in the Green Project Awards 2011 the competition.

Acetate cellulose produced by electrospinning activated by organic fluids to convert the energy of body fluids such as sweat into electrical energy, started in 2008 with an MSc student [Ana Baptista, Msc Thesis, FCT-UNL 2009] who received a PhD scholarship from FCT-MCTES to continue this work. Another MSc student [Joana Neto, MSc Thesis, FTC-UNL, 2010] studied the same structure using a **polycaprolactone** membrane, a polymer that is not only biocompatible but also biodegradable, allowing other possible applications such as body implants. Their work received awards prices for best MSc thesis. This area of research has been consolidated and is now one of the core areas of research for the team.

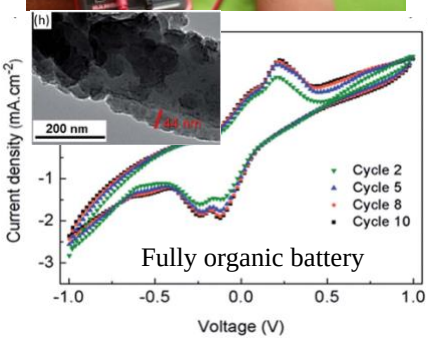
Photo of ceremony



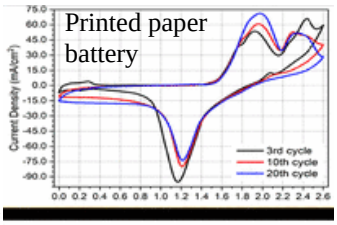
cellulose -paper battery concept

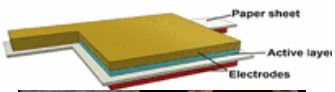
Joana Neto -Best MSc thesis in Materials Science at National Level, 2011E-MRS prize.

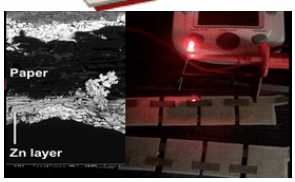
Ana Baptista-Best MSc Thesis in Materials Science at National Level, 2009 SPM prize.



Fully organic battery







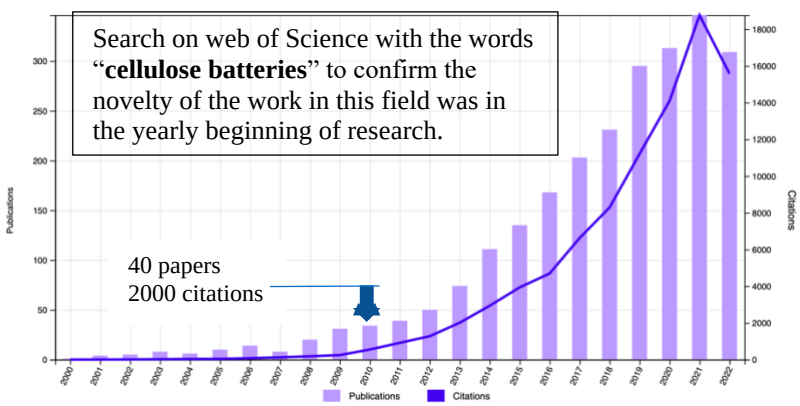
PUBLICATIONS:

1- PAPER BATTERIES

1. *Diogo Miguel Esperança Garcia, Ana Sofia Taborda Martins Pereira,Antońio Carranca Almeida, Urbez Santana Roma, Alejandra Ben Aissa Soler, Paul D. Lacharmoise, Isabel Maria das Merceŝ Ferreira, and Claúdia Custoḋio Delgado Simão, Large-Area Paper Batteries with Ag and Zn/Ag Screen-Printed Electrodes, ACS Omega 2019, 4, 16781−16788, IF=4.32, TC=14;* 10.1038/s41598-020-64649-2
2. *I Ropio, AC Baptista, JP Nobre, J Correia, F Belo, S Taborda, BM Morais Faustino, JP Borges, A Kovalenko, I Ferreira, "Cellulose paper functionalised with polypyrrole and poly (3, 4-ethylenedioxythiophene) for paper battery electrodes", Organic Electronics, 62, 2018, pages 530-535. IF=3.868, TC=15.* 10.1016/j.orgel.2018.06.025
3. *Martins, Rodrigo FP; Ahnood, Arman; Correia, Nuno; Pereira, Luís MNP; Barros, Raquel; Barquinha, Pedro MCB; Costa, Ricardo;* ***Ferreira, Isabel MM****; Nathan, Arokia; Fortunato, Elvira EMC,"Recyclable, Flexible, Low-Power Oxide Electronics", Advanced Functional Materials, 23, 17, 2153-2161, 2013: IF=19.924; TC=145. 10.1002/adfm.201202907*
4. ***Ferreira I****, Brás B, Martins JI, Correia N, Barquinha P, Fortunato E, and Martins R, Solid-state paper batteries for controlling paper transistors, Electrochimica Acta 56 (2011) 1099–1105: IF=7.336; TC=46.* 10.1016/j.electacta.2010.10.018
5. *Rodrigo Martins, Arokia Nathan, Raquel Barros, Luís Pereira, Pedro Barquinha, Nuno Correia, Ricardo Costa, Arman Ahnood,* ***Isabel Ferreira****, Elvira Fortunato, Complementary Metal Oxide Semiconductor Technology With and On Paper, Advanced Materials, 4, 3852-3873 (2011): IF=32.086; TC=276.* 10.1002/adma.201102232
6. ***Ferreira I****, Brás B, Correia N, Barquinha P, Fortunato E, and Martins R, Self-Rechargeable Paper Thin-Film Batteries: Performances and Applications, JOURNAL OF DISPLAY TECHNOLOGY, 1551-319X© 2010 IEEE, 10.1109/JDT.2010.2056672, IF=1.928: IF=1.925; TC=61.* 10.1109/JDT.2010.2056672

2- ACETATE CELLULOSE

1. *AC Baptista, I Ropio, B Romba, JP Nobre, C Henriques, JC Silva, JI Martins, JP Borges, I Ferreira. Cellulose-based electrospun fibers functionalized with polypyrrole and polyaniline for fully organic batteries, Journal of Materials Chemistry A, 6,1,* ***2018****, pages 256-265., IF=14.5, TC=56,* 10.1039/C7TA06457H
2. *Baptista AC, Martins JI, Fortunato E, Martins R, Borges JP and* ***Ferreira I****, Thin and flexible bio-batteries made of electrospun cellulose-based membranes, Biosensors and Bioelectronics 26 (****2011****) 2742–2745: IF=12.545; TC=53.* 10.1016/j.bios.2010.09.055
3. *AC Baptista,* ***I Ferreira****, JP Borges, Electrospun fibers in composite materials for medical applications, J Compos Biodegrad Polym, 1 (****2013****) 56-65.*
4. *A. Baptista; P. Soares;* ***I. Ferreira****; J.P. Borges; Nanofibers and nanoparticles in biomedical applications, in Bioengineered Nanomaterials (****2013****) 93, CRC Press.*
5. *Cellulose-based bioelectronic devices, Cellulose-Medical, A. Baptista; I.* ***Ferreira****; J.P. Borges; Pharmaceutical and Electronic Applications (****2013****) InTech.*
6. *Cellulose-based composite systems for biomedical applications, A. Baptista;* ***I. Ferreira****; J.P. Borges; Biomass based Biocomposites. UK: Smithers Rapra Technology (****2013****) 47-60.*

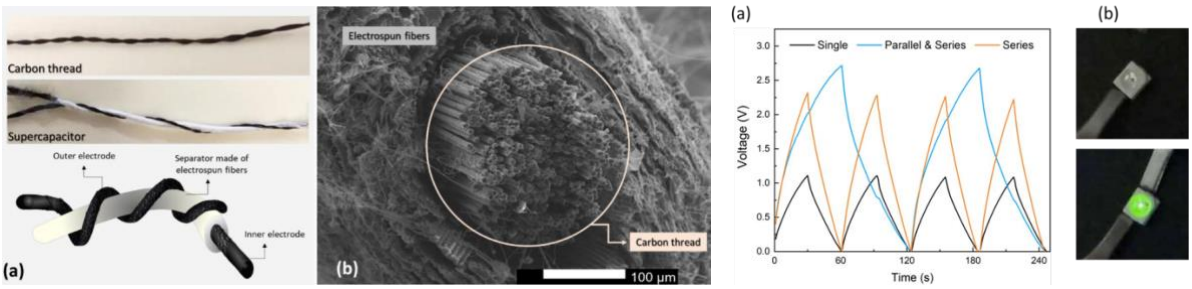


PROJECTS SUPPORTING ACTIVITY

1. PhD Grant: FCT- SFRH / BD / 69306 / 2010- Ana Baptista

2. CELLULOSE MEMBRANES IN CAPACITORS

The idea of using cellulose acetate membranes to make 1D and 2D structured capacitors is also original and was initiated by our research group. As in bio-batteries, the membrane is made of cellulose acetate and acts as a separator and electrolyte reservoir. It covers a carbon yarn and a second yarn electrode is wound around the separator. The result is a 1D wire-like supercapacitor that can be easily incorporated into textiles, with potential applications in medical monitoring devices, or other embedded textile applications. This was initiated by MSc students during their thesis work (Nuno Lima-2019, Patricia Perdigão-2020 and João Henriques-2021).



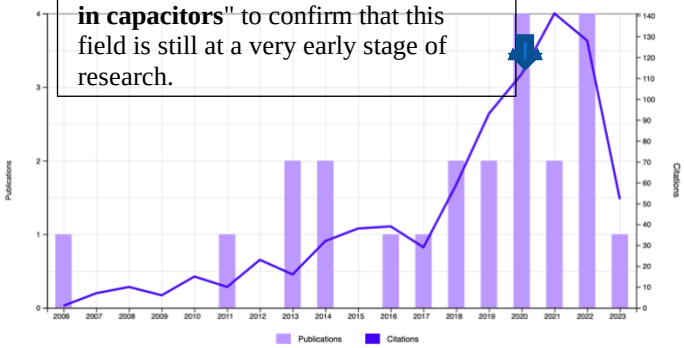
Carbon threads supercapacitors, integration anf LEDs energy supply.

PUBLICATIONS:

1. *N Lima, AC Baptista, BMM Faustino, S Taborda, A Marques, I Ferreira, Carbon threads sweat-based supercapacitors for electronic textiles, Scientific reports (2020) 10 (1), 1-9. 10.1038/s41598-020-64649-2, IF=4.996, TC=24.*
2. *P Perdigão, BM Morais Faustino, J Faria, JP Canejo, Ferreira, A Baptista, Conductive electrospun polyaniline/polyvinylpyrrolidone nanofibers: Electrical and morphological characterization of new yarns for electronic textiles. Fibers (2020) 8 (4), 24 10.3390/fib8040024, IF=3.9, TC=11*
3. *João Tiago Henriques, Ana Marques, Isabel Ferreira and Ana Catarina Baptista, Design evaluation of carbon threads-based supercapacitors for e-textile applications. (submitted)*

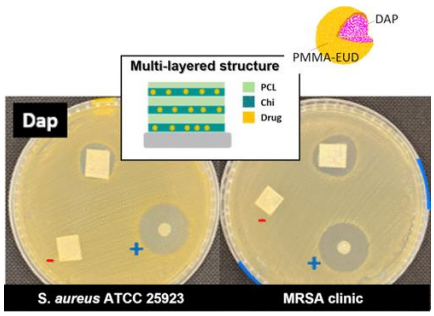
Search the web of Science with the words "**cellulose acetate electrolyte in capacitors**" to confirm that this field is still at a very early stage of research.

4 papers
140 citations

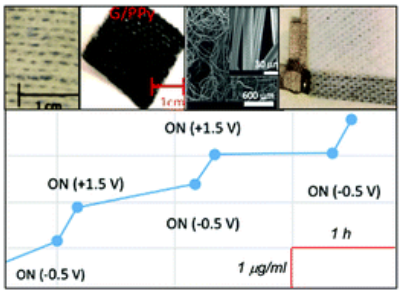


3. CELLULOSE MEMBRANES FOR DRUG DELIVERY

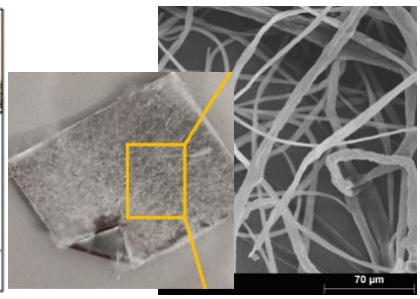
Following on from previous developments, several studies have been carried out to explore the cellulose acetate membranes for drug delivery. Cellulose acetate is a natural polymer that is also biocompatible. This work was started by biomedical engineering students and resulted in several publications and seed work. The ability to combine electrochemical bio-batteries with controlled drug delivery is a recent achievement that will open several doors for further applications in biomedical devices. Attempts have also been made to demonstrate that cellulose coatings can carry drugs and can be used as a protective coating in metal implants. This could provide a low-cost coating to prevent or minimise rejection of implanted prostheses.



Antibaterial assay



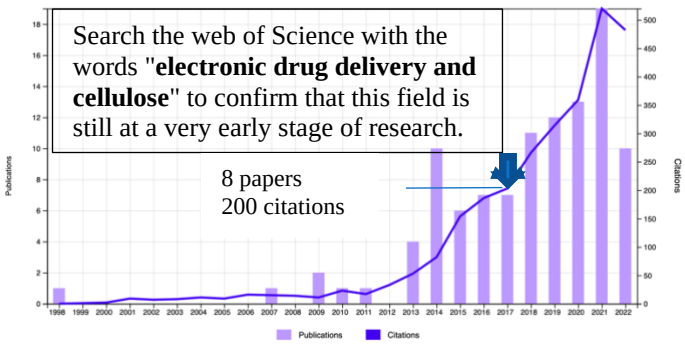
Electronic drug delivery



AC coating on stainless steel

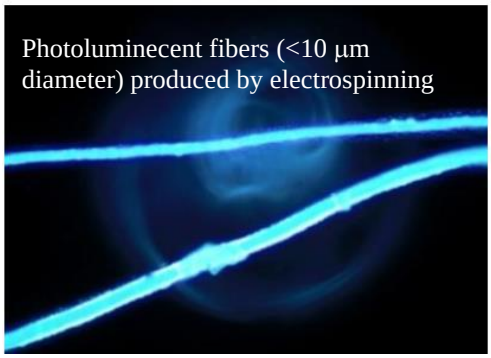
PUBLICATIONS:

1. *Ana Catarina Baptista, Miguel Brito, Ana Marques and Isabel Ferreira,* ***Electronic control of drug release from gauze or cellulose acetate fibres for dermal applications****, J. Mater. Chem. B,* ***2021****,9, 3515-3522, 10.1039/D1TB00249J, IF=7.571, TC=9.*
2. *J Faria, B Dionísio, Í Soares, AC Baptista, A Marques, L Gonçalves****…., Cellulose acetate fibres loaded with daptomycin for metal implant coatings****, Carbohydrate Polymers 276, 118733, 10.1016/j.carbpol.2021.118733, IF=10.723, TC=7.*
3. *I Soares, J Faria, A Marques, IAC Ribeiro, C Baleizão, A Bettencourt, …,* ***Drug Delivery from PCL/Chitosan Multilayer Coatings for Metallic Implants****, ACS omega 7 (27), 23096-23106, https://doi.org/10.1021/acsomega.2c00504, IF=3.512, TC=0*

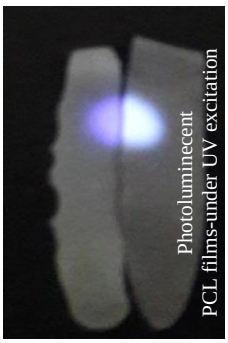


4. LUMINESCENT NANO/MICRO CELLULOSE-BASE FIBRES

A new research activity is growing in the field of organic semiconductor fibres produced by the electrospinning technique. This activity started with as a collaborative project with a colleague who specialising in electrospinning, and was funded by I3N to generate crucial knowledge in the field and to fill a lack of research on organic semiconductors for application in optoelectronic devices.



Photoluminecent cellulose films



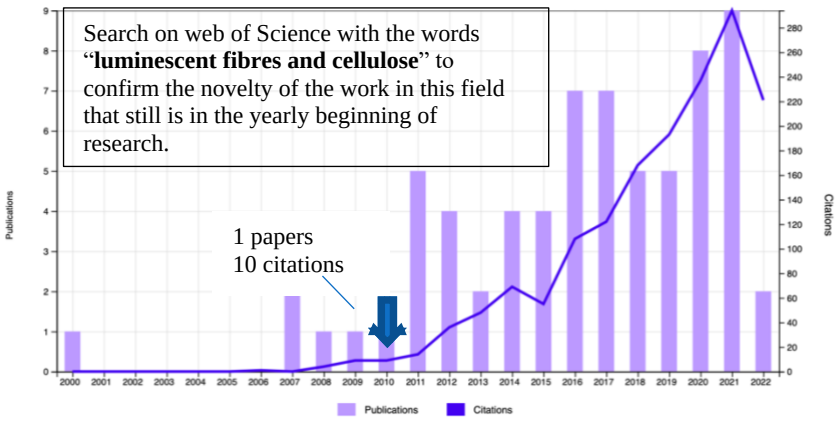
This work led to two papers, an MSc thesis and a PhD thesis (Ana Lima), the first of which establishes a collaboration within I3N (funded by a FCT-MCES grant) between FCT-UNL (CENIMAT-DCM) and U. Minho (IPC). The above topic is still under development with an important contribution from Post-Doc Ana Baptista, who won an FCT project in 2021. Other MSc students thesis have been supervised in this topic.

PUBLICATIONS:

1. *Baptista, Ana C; Botas, Alexandre M; Almeida, Ana PC; Nicolau, Ana T; Falcão, Bruno P; Soares, Manuel J; Leitão, Joaquim P; Martins, Rodrigo; Borges, João P;* ***Ferreira, Isabel****; Down conversion photoluminescence on PVP/Ag-nanoparticles electrospun composite fibers, Optical Materials, 39,278-281,* ***2015****:* 10.1016/j.optmat.2014.11.015. *IF=3.754; TC=15*
2. ***Ferreira, Isabel****; Baptista, Ana Catarina; Leitão, Joaquim Pratas; Soares, Jorge; Fortunato, Elvira; Martins, Rodrigo; Borges, João Paulo; Strongly Photosensitive and Fluorescent F8T2 Electrospun Fibers, Macromolecular Materials and Engineering,298,2,174-180,****2013****:* 10.1002/mame.201200009 *IF= 4.367; TC=6*
3. *A Delgado-Lima, João P Borges,* ***Isabel M Ferreira****, Ana V Machado, Fluorescent and Conductive Cellulose Acetate-based Membranes with Porphyrins, Materials Today Communications, 2017, pag26-37;* 10.1016/j.mtcomm.2017.02.004 *IF=3.662, TC=5*

PROJECTS SUPPORTING ACTIVITY

- I3N Project: **Opto-Eletro-Fiber**, 2011-2013
- Pos-Doc Grant: **SFRH/BPD/104407/2014** – Ana Baptista
- PhD Grant: **SFRH/BD/81711/2011** - Ana Luísa Delgado Lima



5. MAGNETIC NANOPARTICLES FOR HYPERTHERMIA

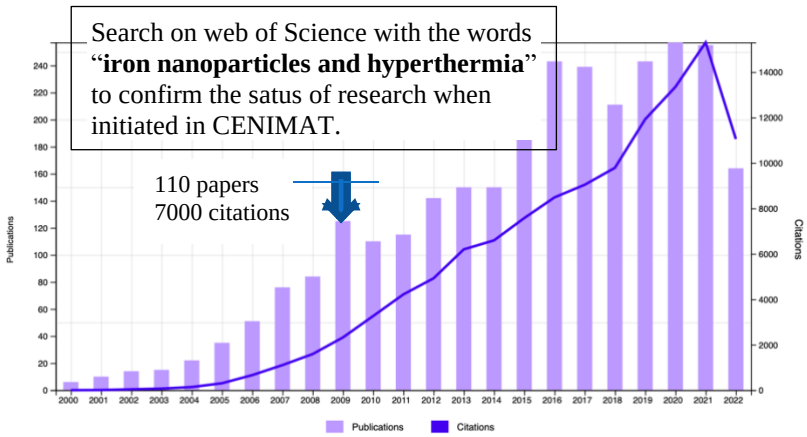
New activities have been initiated at CENIMAT and results have been obtained from a multi-institutional collaboration, involving researchers from different backgrounds, ranging from life sciences to materials engineering and nanotechnologies achieved. A PhD student, was co-supervised by me in the field of preparation and characterisation of magnetic nanoparticles, while the functionalisation with the corresponding pharmacology was accompanied by an expert in the field from the Portuguese Institute of Oncology - IPO and Prof. João Paulo Borges, a colleague of CENIMAT/I3N, the supervisor. The work was challenging with innovative goals and the PhD was completed in 2015 with several important publications in the field, published in journals with high impact factor. My main contribution was related to the synthesis of nanoparticles and their stabilisation to be in suspended solution.

PUBLICATIONS:

1. Paula IP Soares, Ana Isabel Sousa, Jorge Carvalho Silva, Isabel MM Ferreira, Carlos MM Novo, João Paulo Borges. Chitosan-based nanoparticles as drug delivery systems for doxorubicin: Optimization and modelling, Carbohydrate polymers, 147, 304-312, 2016, *10.1016/j.carbpol.2016.03.028*; IF= 10.723 , TC=162.
2. Soares, Paula IP; Sousa, Ana Isabel; Ferreira, Isabel MM; Novo, Carlos MM; Borges, João Paulo; Towards the development of multifunctional chitosan-based iron oxide nanoparticles: Optimization and modelling of doxorubicin release, Carbohydrate Polymers, 153, 212-221, 2016: *10.1016/j.carbpol.2016.07.109*, IF=10.723; TC=34.
3. Soares, Paula IP; Machado, Diana; Laia, César; Pereira, Laura CJ; Coutinho, Joana T; **Ferreira, Isabel MM**; Novo, Carlos MM; Borges, João Paulo; Thermal and magnetic properties of chitosan-iron oxide

nanoparticles, Carbohydrate polymers, 149 (2015) 382-390; 10.1016/j.carbpol.2016.04.123 IF=10.723; TC=77.

4. Soares, P. IP; Alves, A. MR; Pereira, L.CJ; Coutinho, J. T; **Ferreira, I. MM**; Novo, C.MM; Borges, J. PMR; Effects of surfactants on the magnetic properties of iron oxide colloids, Journal of Colloid and Interface Science 419 (2014) 46-5: *10.1016/j.jcis.2013.12.045*1:IF=9.965; TC=122
5. Soares, PIP; Dias, SJR; Novo, CMM; Ferreira, IMM; Borges, JP, Doxorubicin vs. ladirubicin: methods for improving osteosarcoma treatment, MINI-REVIEWS IN MEDICINAL CHEMISTRY Volume: 12 Issue: 12 Pages: 1239-1249 Published: OCT 2012: IF=3.892; TC=12
6. I.P. Soares Paula, M.M. Ferreira Isabel, A.G.B.N. Igreja Rui, M.M. Novo Carlos and P.M.R. Borges Joao, Application of Hyperthermia for Cancer Treatment: Recent Patents Review, Recent Patents on Anti-Cancer Drug Discovery 2012; 7(1): IF=3.631, TC=101. *10.2174/157489212798358038*,

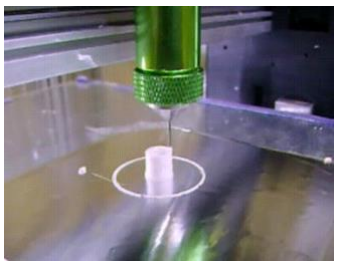


PROJECTS SUPPORTING ACTIVITY

- PhD grant: SFRH/BD/79302/2011 - Paula Soares

6. 3D PRINTING TECHNOLOGIES

This activity started at DCM in 2015, first with a standard filament extrusion printer, and since this is limited to 3D printing plastic objects, an SLA stereolithography printer was purchased to design and print more complicated and detailed models. With this printer it was possible for the first time to reproduce a trachea from a CT image. As a natural progression in terms of research, a paste extrusion printer was purchased and, for the first time at DCM, we successfully printed ytria-doped zirconia from nanopowders. This was tested by a Master student and led to a new project with INNOVNANO (the manufacturer of the powders used). This is a new area of research that I have initiated at the DCM and has shown great potential for future developments. A new printer has also been developed that integrates the functionalities of spraying and extrusion with simultaneous scribbing/annealing/or laser polymerisation. This work was developed as a Master's thesis. New developments are being made and new projects are possible in this area.

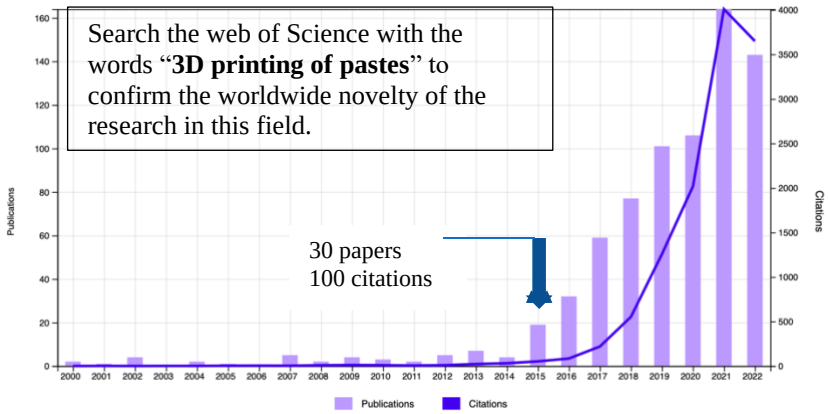


PUBLICATIONS:

Master Theses: Ana Gaspar, (2016) that is under confidentiality and Filipe Silvestre, 2017; and printing of glutes prosthesis has been made as request of "Centro Hospitalar de Lisboa" for a young patient.

1. *Ana Filipa Cristovão, David Sousa, Filipe Silvestre, Inês Ropio, Ana Gaspar, Célia Henriques, Alexandre Velhinho, Ana Catarina Baptista, Miguel Faustino,* ***Isabel Ferreira****, "Customized tracheal design using 3D printing of a polymer hydrogel: influence of UV laser cross-linking on mechanical properties" 3D Printing in Medicine* ***volume 5****, Article number: 12 (2019);* 10.1186/s41205-019-0049-8, *TC=9, reads 4586.*

2. *AC Marques, Davide Miglietta, G Gaspar, AC Baptista, A Gaspar, P Perdigão, I Soares, C Bianchi, D Sousa, BM Morais Faustino, VS Amaral, T Santos, AP Gonçalves, RC da Silva, Fabrizio Giorgis, **I Ferreira**, Synthesis of thermoelectric magnesium-silicide pastes for 3D printing, electrospinning and low-pressure spray, Materials for Renewable and Sustainable Energy 8 (4), 21(2019), 10.1007/s40243-019-0159-7 IF=4.9; TC=5, reads 3067,*



3. *Diogo Mendes, David Sousa, Ana C Cerdeira, Laura CJ Pereira, Ana Marques, João Murta-Pina, Anabela Pronto, Isabel Ferreira, Low-cost and high-performance 3D printed YBCO superconductors, Ceramics International 47 (2021) 381–387382. 10.1016/j.ceramint.2020.08.143; IF=5.532; TC=13*

PROJECTS SUPPORTING ACTIVITY

PIC3D - **150316 – P2020**, "Produção de Implantes Cerâmicos à base de zircónica por impressão 3D"; INNOVNANO and FCT-UNL

7. MICROELECTRONICS AND OPTOELECTRONICS DEVICES

I supervised a PhD student on position-sensitive detectors for laser-based triangulation detection systems, using arrays of 32 1D detectors made from amorphous silicon pin structures with dimensions of 14 mm and 270 μm. We have demonstrated for the first time the ability to detect the position of a micro-cantilever in a microscope in real time, and to map the 3D image of macro-objects.

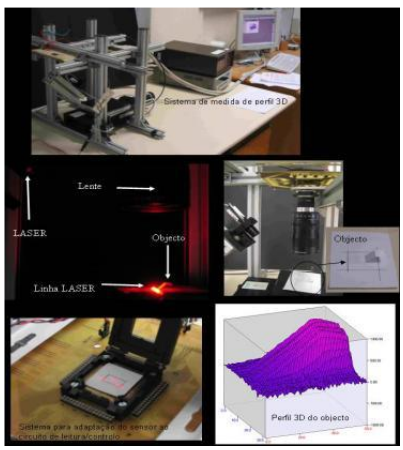
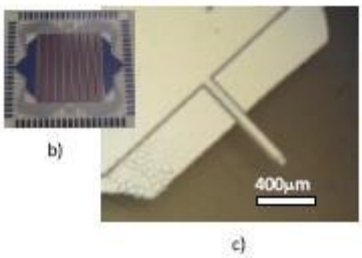


Image of the sensor and the micro-cantilever; 3D PSD detection system coupled and 3D image constructed for an object.



PUBLICATIONS:

1. *Contreras, J; Rodrigo M.; Pawel W; Filonovich, S.; Aguas, H.; Gomes, L.; Fortunato, E.; **Ferreira, I.**; Color sensing ability of an amorphous silicon position sensitive detector array system, Sensors and Actuators A: Physical, 205 (2014), 26-37: 10.1016/j.sna.2013.10.017, IF=4.291; TC=4*
2. *Javier Contreras, Marek Idzikowski, Sónia Pereira, Sergej A. Filonovich, Elvira Fortunato, Rodrigo Martins, and **Isabel Ferreira**, Amorphous Silicon Position Sensitive Detector Array for Fast 3-D Object Profiling, IEEE SENSORS JOURNAL, VOL. 12, NO. 4, APRIL 2012: 10.1109/JSEN.2011.2164398, IF=4.325; TC=10*
3. *Contreras J., Idzikowski M., Pereira S., Filonovich S. A., Fortunato E., Martins R., **Ferreira I.**, Amorphous silicon position sensitive detector array system for fast 3D object profiling, OPTICS EXPRESS, Vol. 20, No. 4, (2012) 4583: 10.1364/OE.20.004583; IF=3.148; TC=6*

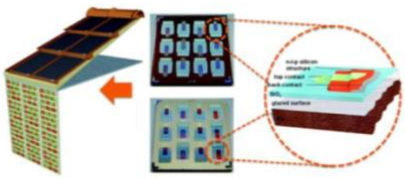
4. *Javier Contreras, Daniel Costa, Sonia Pereira, Elvira Fortunato, Rodrigo Martins, Rafal Wierzbicki, Holger Heerlein and **Isabel Ferreira**, Micro Cantilever Movement Detection with an Amorphous Silicon Array of Position Sensitive Detectors, Sensors 2010, 10(9), 8173-8184; 10.3390/s100908173: IF=3.9; TC=10.*

PROJECTS SUPPORTING ACTIVITY

1. **"Advanced Handling and Assembly in Microtechnology- ASSEMIC" (2003-2007),** 6th UE program, Marie Curie Actions: Research Training Networks, proposal nº 504826
2. **PhD Grant, Javier Contreras, SFRH/BPD/95001/2013.**

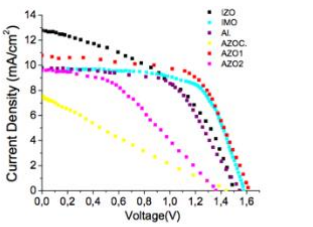
8. SOLAR CELLS

High-efficiency solar cells based on amorphous and nanocrystalline silicon thin films have been developed and were supported by two QREN projects. One to produce prototype solar tiles (QREN 3380, supported by Revigrês) and another to implement the efficiency of nanocrystalline solar cells (QREN 5610, supported by Solar Plus). These were industrial demonstration projects. Exciting results were obtained and published in the journal with the highest impact factor journal in the field of energy. A patent (PAT 41758/10) has also been granted due to the innovative concept associated with this project.

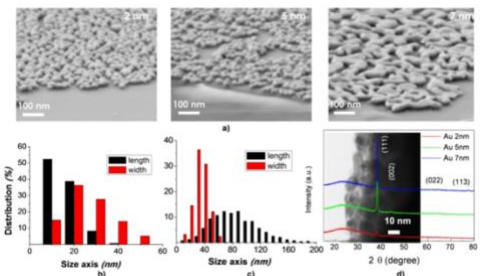


Prototype of Solar Tiles

Silicon thin film solar cells on commercial tiles; H. Aguas,* S. K. Ram, A. Araújo, D. Gaspar, A. Vicente, S. A. Filonovich, E. Fortunato, R. Martins* and I. Ferreira; Energy Environ. Sci., 2011, 4, 4620.

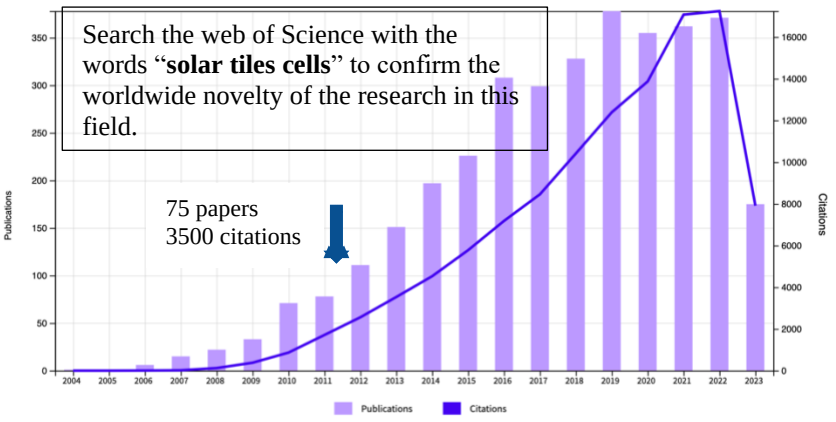


IV characteristics of a solar cell made in Solar Plus (enterprise) with different TCOs



Influence of nanoparticle size on the plasmonic effect in Si solar cells

As a consequence of the above developments, the development of ***plasmonic nanoparticles*** to improve the efficiency of solar cells started in the MEON group under my supervision of MSc student and later with a Marie Curie Fellow (Manuel Mendes) November 2014-16. The first work was presented at the E-MRS conference in 2012 and subsequently published in the journal Scientific Reports, published by Nature.



PUBLICATIONS:

1. *Gaspar, D., Pimentel, AC., Mendes, MJ., Mateus, T., Falcão BP, Leitão JP, Soares J, Araújo A, Vicente A, Filonovich SA, Águas H, Martins R, **Ferreira I**: Ag and Sn Nanoparticles to Enhance the Near-Infrared Absorbance of a-Si:H Thin Films, Plasmonics, online (2014) 1-9: 10.1007/s11468-014-9709-0: IF=2.726; TC=23*
2. *DPAC Gaspar, AC Pimentel, T Mateus, JP Leitao, J Soares, BP Falcao, A Araújo, A Vicente, SA Filonovich, H Aguas, R Martins, **I Ferreira**; Influence of the layer thickness in plasmonic gold nanoparticles produced by thermal evaporation, Scientific Reports, 3, 2013. 10.1038/srep01469, IF=4.996, TC=97.*

3. *D. Gaspar, A. Rifflet, A. Araújo, A. Vicente, T. Mateus, S.A.Filonovich, H. Águas, E. Fortunato, R. Martins,* ***I. Ferreira****, ELECTRO-OPTICAL PROPERTIES OF GOLD, SILVER AND TIN PLASMONIC LAYERS OBTAINED BY E-BEAM THERMAL EVAPORATION- E-MRS fall meeting, 2012, Oral presentation.*
4. *Hugo Águas, Sanjay K Ram, Andreia Araújo, Diana Gaspar, António Vicente, Sergej A Filonovich, Elvira Fortunato, Rodrigo Martins,* ***Isabel Ferreira****, Silicon thin film solar cells on commercial tiles, Energy & Environmental Science, 4 (11) (2011) 4620-4632. 10.1039/C1EE02303A IF=39714, TC=87.*

PROJECTS SUPPORTING ACTIVITY

1. **ERC – CoS Grant 647596**-CapTherPV-Integration of Capacitor, Thermoelectric and PhotoVoltaic thin films for efficient energy conversion and storage – 2015-2020;
2. **QREN Nº 5610: NanoSi-PVCells** -"Development of photovoltaic devices based on nanostructured silicon", 2009-2011, SOLARPLUS, CENIMAT
3. **QREN Nº 3380: SolarTiles, 2009-2011**, Dominó SA;J. Coelho da Silva, SA; CTCV; INETI -; CENIMAT/FCT/UNL - Centro Viris, Natura e Ambiente SA.
4. **PTDC/CTM/73943/2006**: "Óxidos multifuncionais: nova aproximação à integração a baixa temperatura de óxidos semicondutores como filmes finos activos e passivos na nova geração de sistemas electrónicos – MONALISA", 2007-2009: CEMOP/UNINOVA; CENIMAT and CEOT (U. Algarve)

9. THERMOELECTRICS

The thermoelectric properties of thin film oxides were first studied by an MSc student under my supervision [Adriana Nogueira, MSc Thesis, 2010, FCT-UNL] and the innovative results obtained were the driving force for a new research area. The thermoelectric properties of VxMyOz (M=Zn, W, Sn) oxides were promising and this success potentially led this study into a European project (NANOTEG ENIAC/0002/2010) which started in July 2011. This project was coordinated by Thales (France) and the consortium included the main European players in the field of thermoelectrics and several collaborations were established with CEA, CNRS, Thales, Fiat, Micropelt, Litten, and ICN. The results obtained for oxide thin film thermoelectrics are now state of the art.

2013 Paper 13- 1st Semitransparente oxide thermoelectric material
2014 Paper 11 – 1st Transparent and concutive oxide thermoelectric materials

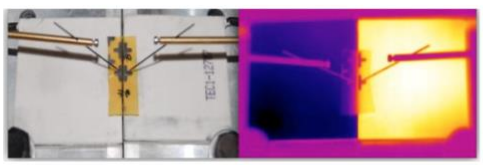
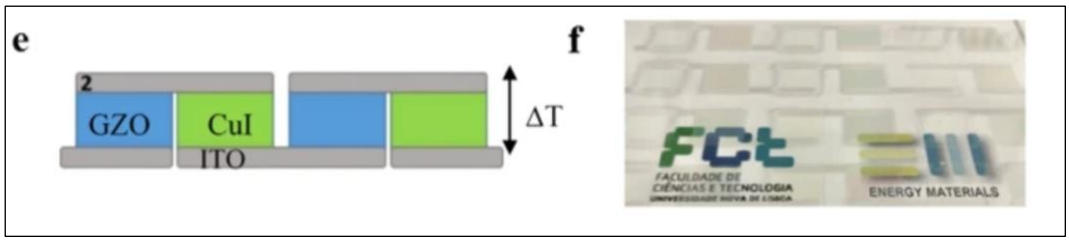


Image of a measurement of the thermoelectric potential (0.5mV) of VxOy film for a temperature differential ΔT of 5°C under room atmosphere and temperature.

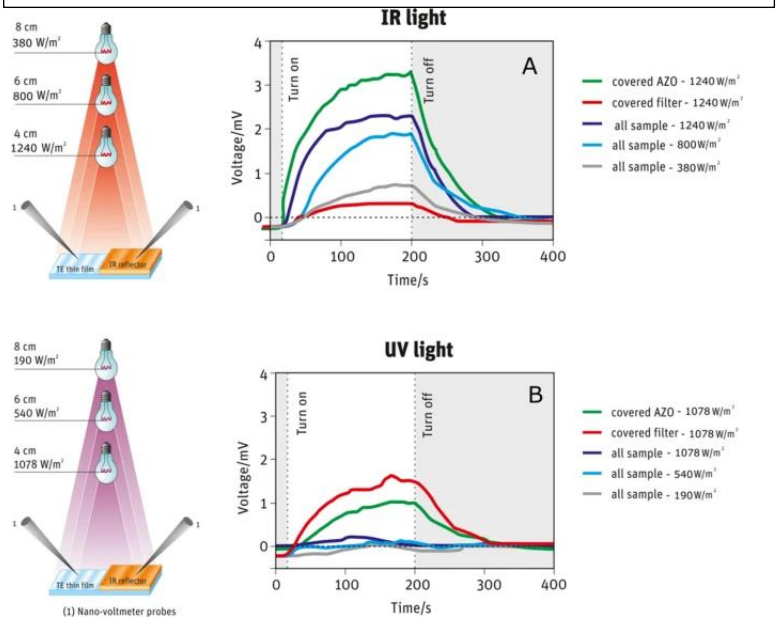
After the European project in 2014, we have demonstrated the good performance of TCOs as transparent thermoelectrics, and this concept was proposed for windows under a H2020 project-TransFlexTeg project (2015-2018). The scientific work was initially coordinated with the collaboration of postdoctoral researcher Joana Loureiro and since January 2017 with a postdoctoral researcher Ana Marques.

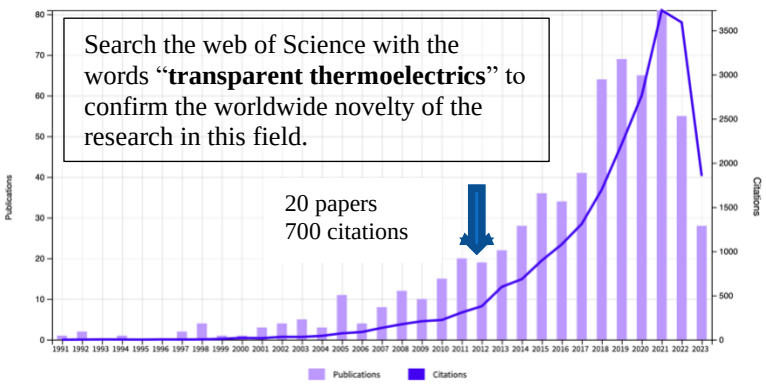
2018 Paper 4 – 1st Transparent thermoelectric module



PUBLICATIONS:

2021 Paper 2- 1st Transparent phothermoelectric device





1. *Catarina Bianchi, Ana Marques, Isabel Ferreira;* ***Photothermoelectric AZO/SiO_2/NiO Device,*** *Adv. Mater. Technol.* ***2023,*** *2300133, 10.1002/admt.202300133; IF=8.856.*
2. *C Bianchi, AC Marques, RC da Silva, T Calmeiro, I Ferreira;* ***Near infrared photothermoelectric effect in transparent AZO/ITO/Ag/ITO thin films****;Scientific Reports 11 (1), 24313. 10.1038/s41598-021-03766-y; IF=4.996; TC=7*
3. *J Coroa, BM Morais Faustino, A Marques, C Bianchi, T Koskinen, T Juntunen, I Tittonen, I Ferreira, Highly transparent copper iodide thin film thermoelectric generator on a flexible substrate, RSC Advances 9 (61), 35384-35391., 10.1039/C9RA07309D, IF=4.036; TC=38*
4. *Bruno Miguel Morais Faustino, Diogo Gomes, Jaime Faria, Taneli Juntunen, Guilherme Gaspar, Catarina Bianchi, António Almeida, Ana Marques, Ilkka Tittonen, Isabel Ferreira, CuI p-type thin films for highly transparent thermoelectric pn modules, Scientific reports,8,1,2018, pages 6867. 10.1038/s41598-018-25106-3; IF=4.996, TC=72*
5. *Joana Figueira, Joana Loureiro, José Marques, Catarina Bianchi, Paulo Duarte, Mikko Ruoho, Ilkka Tittonen, Isabel Ferreira, Optimization of Cuprous Oxides Thin Films to be used as Thermoelectric Touch Detectors, ACS applied materials & interfaces 9 (7), 6520-6529, 2017. 10.1021/acsami.6b12753; IF=10.383; TC=25.*
6. *Joana Loureiro, Tiago Mateus, Sergej Filonovich, Marisa Ferreira, Joana Figueira, Alexandra Rodrigues, Brian F Donovan, Patrick E Hopkins, Isabel Ferreira, Improved thermoelectric properties of nanocrystalline hydrogenated silicon thin films by post-deposition thermal annealing, Thin Solid Films,642, 2017, pages 276-280, 2017. IF=1,939, TC=5.*
7. *Bianchi, C; Ferreira, LM; Loureiro, J; Rodrigues, A; Duarte, P; Baptista, AC;* ***Ferreira, IM****; Vanadium Pentoxide Alloyed with Graphite for Thin-Film Thermal Sensors, Journal of Electronic Materials, 45, 3, 1987-1991, 2016: IF=1.579; TC=3*

8. *Bianchi, Catarina; Loureiro, Joana; Duarte, Paulo; Marques, Jose; Figueira, Joana; Ropio, Ines;* ***Ferreira, Isabel****; V_2O_5 Thin Films for Flexible and High Sensitivity Transparent Temperature Sensor, Advanced Materials Technologies, 2016: 10.1002/admt.201600077; IF=8.856; TC=20*
9. *Ferreira, M; Loureiro, J; Nogueira, A; Rodrigues, A; Martins, R;* ***Ferreira, I****; SnO_2 thin Film Oxides Produced by rf Sputtering for Transparent Thermoelectric Devices, Materials Today: Proceedings, 2, 2, 647-653, 2015: 10.1016/j.matpr.2015.05.090 IF=3.2; TC=28.*
10. *Loureiro, Joana; Mateus, Tiago; Filonovich, Sergej; Ferreira, Marisa; Figueira, Joana; Rodrigues, Alexandra; Donovan, Brian F; Hopkins, Patrick E;* ***Ferreira, Isabel****; Hydrogenated nanocrystalline silicon thin films with promising thermoelectric properties, Applied Physics A, 120, 4, 1497-1502, 2015: 10.1007/s00339-015-9343-5 IF=2.983; TC=14*
11. *Loureiro, J; Neves, N; Barros, R.; Mateus, T.; Santos, R.; Filonovich, S.; Reparaz, S.; Sotomayor-Torres, C M; Wyczisk, F.; Divay, L.; Martins R. and* ***Ferreira I.*** *Transparent aluminium zinc oxide thin films with enhanced thermoelectric properties, Journal of Materials Chemistry A (2014) 2, 18, 6649-6655: 10.1039/C3TA15052F; IF=14.511; TC=118*
12. *Loureiro, J.; Santos, J.; Nogueira, A.; Wyczisk, F.; Divay, L.; Reparaz, S.; Alzina, F.; Torres, C. M Sotomayor; Cuffe, J.; Montemor, F.; Martins R. and* ***Ferreira I,*** *Nanostructured p-type Cr/V2O5 thin films with boosted thermoelectric properties, Journal of Materials Chemistry A (2014) 2, 18, 6456-6462: 10.1039/C3TA15168A IF=14.511; TC=24*
13. *Santos, R; Loureiro, J; Nogueira, A; Elangovan, E; Pinto, JV; Veiga, JP; Busani, T; Fortunato, E; Martins, R;* ***Ferreira, I****; Thermoelectric properties of V_2O_5 thin films deposited by thermal evaporation, Applied Surface Science, 282, 590-594, 2013: 10.1016/j.apsusc.2013.06.016; IF=7.392; TC=97*

PROJECTS SUPPORTING ACTIVITY

- **ERC–CoS Grant: 647596-CAPTHERPV**-Integration of Capacitor, Thermoelectric and PhotoVoltaic thin films for efficient energy conversion and storage, 2015-2020;
- H2020-ICT-2014-1: 645241- **TransFlexTeg** - Large area transparent thin film thermoelectric devices for smart window and flexible applications; 2015-2017
- ENIAC-2010-1: Nanostructured thermoelectric systems for green transport & energy efficient applications-**NANOTEG**; 2011-2014

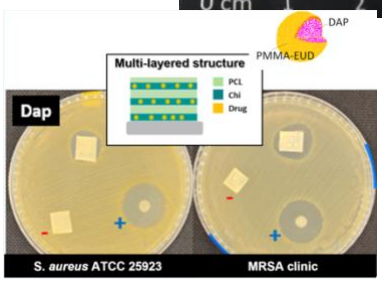
FURTHER RESEARCH PERSPECTIVES

The objectives for the coming years are to explore the results of lastest research:

1) 3D printing of bone prostheses - new contacts are being made for project submission;

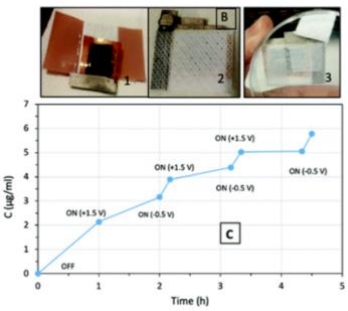
1st prototype of cortical bone-like segment printed

2) Coatings containing drugs to improve the acceptance of prostheses made of different materials, definition of a technology to minimise the rejection of implants (in progress);



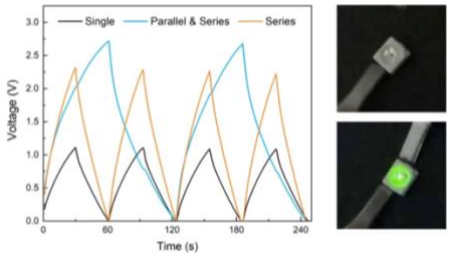
1st prototype of metal implant coating protection and drug release control

3) Electronic controlled drug delivery will be explored to create a device/system that can be used in chronic skin conditions that can be managed with a remotely controlled electronic patch;



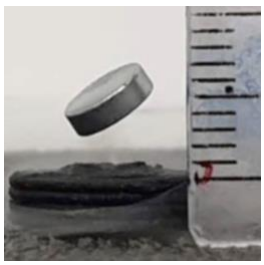
1st prototype of electronic control of drug release

4) Cellulose-based energy conversion is very important for powering various light and flexible electronics applications, including textiles;

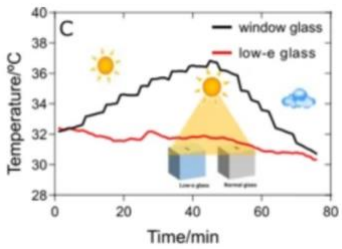


1st prototype of capacitor fibres for e-textiles with sweat as electrolyte

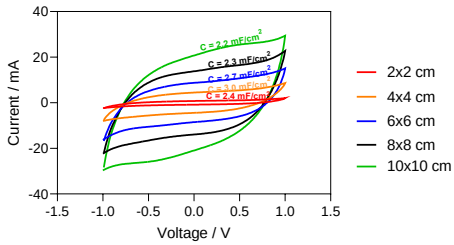
5) Inorganic materials will continue to be an important research theme, in particular materials for energy conversion and efficiency of buildings, including thermal energy management (capture, storage and conversion).



3d Printing and films of superconductors



Glass windows with add energy supply



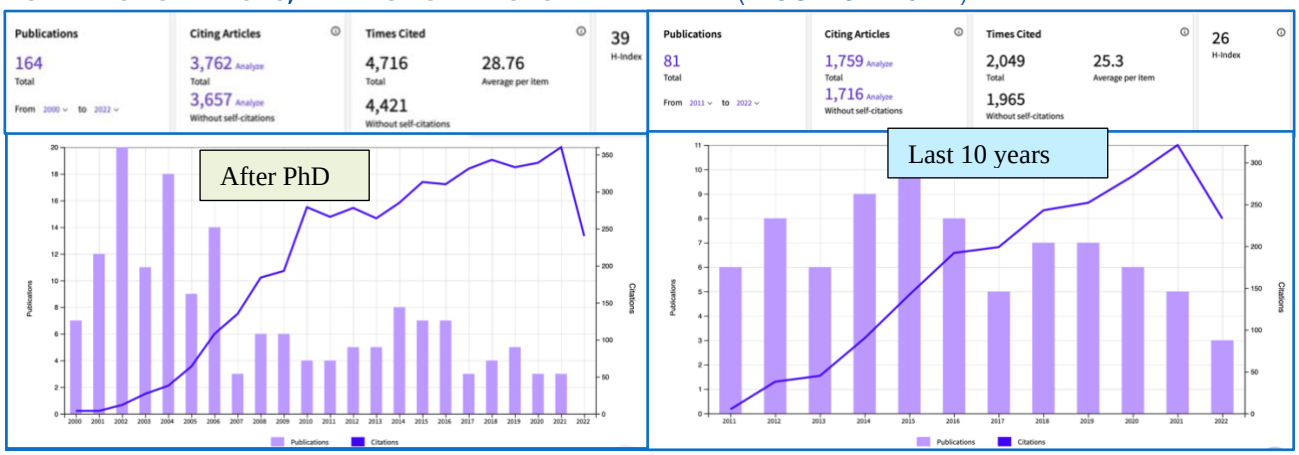
Flexible low cost capacitors and batteries

6) The growth of materials that mimic nature will be a topic to be developed in the near future, e.g. bone materials, bio-batteries using only organic and bio-compatible materials with multifunctional applications, energy conversion, muscles and optoelectronic devices are some of the possible topics to be explored in collaboration with colleagues from DCM, other departments and other countries.

SUMMARY OF THE PUBLICATIONS

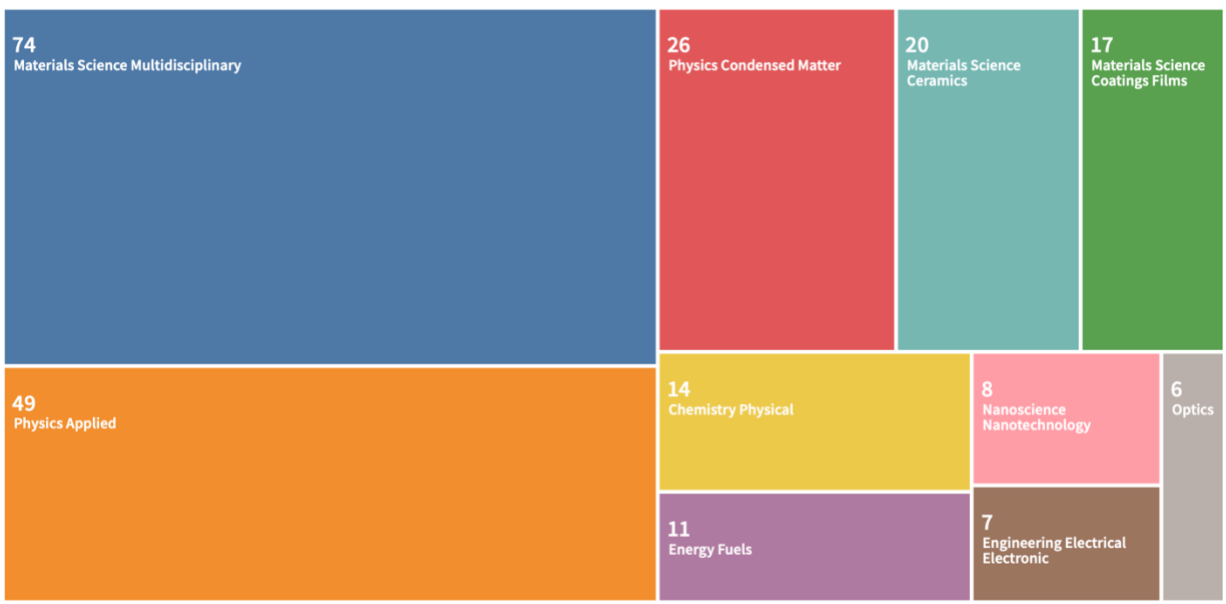
A search in the Web of Science (18 November, 2022) shows the graph of "Citations in Each Year". As fas as post-doctoral publications are concerned, ***in 2002*** about ***164 papers*** were recorded in WoS with an average of 28.76 citations per year, an ***h-index of 39*** and an average of 7 papers published per year. I consider this to be a high level of productivity achieved despite being involved in several activities and teaching being a major component.

NUMBER OF CITATIONS, AVERAGE CITATIONS AND H-INDEX (WOS-NOV 2022)



In the past, no specific publication criteria were defined within the group or even by FCT-MCTES. As a result, most publications were in journals related to the research area, without taking into account their impact factor. Currently, criteria have been defined and the evaluation of productivity takes into account the number of citations and the impact factor of journals. Therefore, after 2015, a selection of journals with a high impact factor was made, which is reflected in the most recent publications. A further increase in the impact factor of the published papers was achieved in the last year (2023), as can be seen in the table of selected papers (average impact factor of 14 in the last 5 papers).

The main field of publication in the last 10 years was obtained from the results analysis tool available in WoS, but it only shows the top 10 results.



		IF/2022	TC|R*
1.	C. C.do Carmo, M.l Brito, J. P. Oliveira, A. Marques, I. Ferreira and A. C. Baptista; Cellulose Acetate and Polycaprolactone Fibre Coatings on Medical-Grade Metal Substrates for Controlled Drug Release, *Polymers* **2024**, *16*(14), 2006; **https://doi.org/10.3390/polym16142006**	4.7	*Isabel M.M. Ferreira*
2.	JT Henriques, CC do Carmo, A Marques, IMM Ferreira, AC Baptista; Carbon Threads Supercapacitors for Washable e-Textile Applications: Configurations and Electrochemical Performance; ACS Applied Engineering Materials 2 (2), 415-421; https://doi.org/10.1021/acsaenm.3c00723	9.5	-
3.	Catarina Bianchi, Ana Marques, Isabel Ferreira; ***Photothermoelectric AZO/SiO_2/NiO Device,*** Adv. Mater. Technol**. 2023,** 2300133, DOI: 10.1002/admt.202300133	8.856	-
4.	Mariana P Moniz, Amjid Rafique, João Carmo, JP Oliveira, Ana Marques, Isabel MM Ferreira, Ana Catarina Baptista, ***Electrospray Deposition of PEDOT: PSS on Carbon Yarn Electrodes for Solid-State Flexible Supercapacitors,*** ACS Applied Materials & Interfaces, **2023**, https://doi.org/10.1021/acsami.3c03903	10.383	13
5.	Amjid Rafique, Inês Sequeira, Ana Sofia Bento, Mariana Peyro Moniz, João Carmo, Eduardo Oliveira, João Pedro Oliveira, Ana Marques, Isabel Ferreira, Ana Catarina Baptista; ***A facile blow spinning technique for green cellulose acetate/polystyrene composite separator for flexible energy storage devices,*** Chemical Engineering Journal, 464, 142515. https://doi.org/10.1016/j.cej.2023.142515	16.744	11
6.	Amjid Rafique, Isabel Ferreira, Ghulam Abbas & Ana Catarina Baptista, ***Recent Advances and Challenges Toward Application of Fibers and Textiles in Integrated Photovoltaic Energy Storage Device***, Nano-Micro Letters volume 15, Article number: 40 (2023). https://doi.org/10.1007/s40820-022-01008-y	23.655	56
7.	J Faria, B Dionísio, Í Soares, AC Baptista, A Marques, L Gonçalves…I. Ferreira, A. Baptista., ***Cellulose acetate fibres loaded with daptomycin for metal implant coatings***, Carbohydrate Polymers (**2022**) 276, 118733, 10.1016/j.carbpol.2021.118733	10.723	9|27
8.	C Bianchi, AC Marques, RC da Silva, T Calmeiro, I Ferreira, ***Near infrared photothermoelectric effect in transparent AZO/ITO/Ag/ITO thin films***, Scientific reports, **2021**, 11 (1), 1-11, 24313, 10.1038/s41598-021-03766-y	4.996	12|2627
9.	Ana Catarina Baptista, Miguel Brito, Ana Marques and Isabel Ferreira, ***Electronic control of drug release from gauze or cellulose acetate fibres for dermal applications,*** J. Mater. Chem. B, **2021**,9, 3515-3522, 10.1039/D1TB00249J	7.571	14|-
10.	Diogo Mendes, David Sousa, Ana C Cerdeira, Laura CJ Pereira, Ana Marques, João Murta-Pina, Anabela Pronto, Isabel Ferreira, ***Low-cost and high-performance 3D printed YBCO superconductors,*** Ceramics International 47 (2021) 381–387382. 10.1016/j.ceramint.2020.08.143	5.532	19|29
11.	D Magalhães Sousa, W Chiappim, J P. Leitão, JC Lima, I Ferreira, ***Microwave synthesis of silver sulfide and silver nanoparticles: light and time influence***, ACS omega (2020) 5 (22), 12877-12881. 10.1021/acsomega.0c00656	4.132	14|1805
12.	N Lima, AC Baptista, BMM Faustino, S Taborda, A Marques, I Ferreira, ***Carbon threads sweat-based supercapacitors for electronic textiles***, Scientific reports (2020) 10 (1), 1-9. 10.1038/s41598-020-64649-2	4.996	44|3245
13.	Diogo Miguel Esperança Garcia, Ana Sofia Taborda Martins Pereira, Antońio Carranca Almeida, Urbez Santana Roma, Alejandra Ben Aissa Soler, Paul D. Lacharmoise, Isabel Maria das Merceŝ Ferreira, and Claúdia Custoḑio Delgado Simao, ***Large-Area Paper Batteries with Ag and Zn/Ag Screen-Printed Electrodes***, ACS Omega 2019, 4, 16781−16788. 10.1021/acsomega.9b01545	4.32	14|2658
14.	Ana Filipa Cristovão, David Sousa, Filipe Silvestre, Inês Ropio, Ana Gaspar, Célia Henriques, Alexandre Velhinho, Ana Catarina Baptista, Miguel Faustino, Isabel Ferreira, ***Customized tracheal design using 3D printing of a polymer hydrogel: influence of UV laser cross-linking on mechanical properties***, 3D printing in medicine (2019) 5 (1), 12, 10.1186/s41205-019-0049-8	NA	9|4586

15.	J Coroa, BM Morais Faustino, A Marques, C Bianchi, T Koskinen, T Juntunen, I Tittonen, I Ferreira, ***Highly transparent copper iodide thin film thermoelectric generator on a flexible substrate***, RSC Advances (2019) 9 (61), 35384-35391. 10.1039/C9RA07309D	4.036	38|na
16.	AC Baptista, I Ropio, B Romba, JP Nobre, C Henriques, JC Silva, JI Martins, JP Borges, I Ferreira. ***Cellulose-based electrospun fibers functionalized with polypyrrole and polyaniline for fully organic batteries***, Journal of Materials Chemistry A, 6,1, 2018, pages 256-265. 10.1039/C7TA06457H	14.511	56|na
17.	Bruno Miguel Morais Faustino, Diogo Gomes, Jaime Faria, Taneli Juntunen, Guilherme Gaspar, Catarina Bianchi, António Almeida, Ana Marques, Ilkka Tittonen, Isabel Ferreira, ***CuI p-type thin films for highly transparent thermoelectric pn modules***, Scientific reports,8,1,2018, pages 6867. 10.1038/s41598-018-25106-3	4.996	72|7101
18.	I Ropio, AC Baptista, JP Nobre, J Correia, F Belo, S Taborda, BM Morais Faustino, JP Borges, A Kovalenko, I Ferreira, ***Cellulose paper functionalised with polypyrrole and poly (3, 4-ethylenedioxythiophene) for paper battery electrodes***, Organic Electronics, 62, 2018, pages 530-535. 10.1016/j.orgel.2018.06.025	3.868	15|37
19.	David Magalhães Sousa, Luís Cerqueira Alves, Ana Marques, Guilherme Gaspar, João Carlos Lima & Isabel Ferreira; ***Facile Microwave-assisted Synthesis Manganese Doped Zinc Sulfide Nanoparticles***, Scientific Reports, 8, 2018, Article number: 15992. IF=4.379, TC=11 10.1038/s41598-018-34268-z	4.996	18|3474
20.	Joana Figueira, Joana Loureiro, José Marques, Catarina Bianchi, Paulo Duarte, Mikko Ruoho, Ilkka Tittonen, Isabel Ferreira, ***Optimization of Cuprous Oxides Thin Films to be used as Thermoelectric Touch Detectors***, ACS applied materials & interfaces (2017) 9 (7), 6520-6529. 10.1021/acsami.6b12753	10.383	25|949
21.	Mendes, Manuel J; Araújo, Andreia; Vicente, António; Águas, Hugo; Ferreira, Isabel; Fortunato, Elvira; Martins, Rodrigo; ***Design of optimized wave-optical spheroidal nanostructures for photonic-enhanced solar cells***, Nano Energy, 2016, 26, 286-296. https://doi.org/10.1016/j.nanoen.2016.05.038	19.609	71|68
22.	Bianchi, Catarina; Loureiro, Joana; Duarte, Paulo; Marques, Jose; Figueira, Joana; Ropio, Ines; Ferreira, Isabel; ***V_2O_5 Thin Films for Flexible and High Sensitivity Transparent Temperature Sensor,*** Advanced Materials Technologies, 2016, 1 (6), 1600077 https://doi.org/10.1002/admt.201600077	8.856	20|-
23.	Baptista, Ana C; Botas, Alexandre M; Almeida, Ana PC; Nicolau, Ana T; Falcão, Bruno P; Soares, Manuel J; Leitão, Joaquim P; Martins, Rodrigo; Borges, João P; Ferreira, Isabel; ***Down conversion photoluminescence on PVP/Ag-nanoparticles electrospun composite fibers***, Optical Materials, 2015, 39, 278-281. 10.1016/j.optmat.2014.11.015	3.754	15|21
24.	Nuno Neves, Ana Lagoa, João Calado, AM Botelho do Rego, Elvira Fortunato, Rodrigo Martins, Isabel Ferreira, ***Al-doped ZnO nanostructured powders by emulsion detonation synthesis–Improving materials for high quality sputtering targets manufacturing***, Journal of the European Ceramic Society, 2014, 34(10) 2325-2338. 10.1016/j.jeurceramsoc.2014.02.019	6.364	24|38
25.	Soares, P. IP; Alves, A. MR; Pereira, L.CJ; Coutinho, J. T; Ferreira, I. MM; Novo, C.MM; Borges, J. PMR; ***Effects of surfactants on the magnetic properties of iron oxide colloids***, Journal of Colloid and Interface Science, 2014, 419, 46-51 10.1016/j.jcis.2013.12.045	9.965	122|209
26.	Gaspar, D., Pimentel, AC., Mendes, MJ., Mateus, T., Falcão BP, Leitão JP, Soares J, Araújo A, Vicente A, Filonovich SA, Águas H, Martins R, Ferreira I: ***Ag and Sn Nanoparticles to Enhance the Near-Infrared Absorbance of a-Si:H Thin Films*****,** Plasmonics, 2014, 1-9: 10.1007/s11468-014-9709-0	2.726	23|706
27.	Loureiro, J; Neves, N; Barros, R.; Mateus, T.; Santos, R.; Filonovich, S.; Reparaz, S.; Sotomayor-Torres, C M; Wyczisk, F.; Divay, L.; Martins R. and Ferreira I. ***Transparent aluminium zinc oxide thin films with enhanced thermoelectric properties*****,** Journal of Materials Chemistry A, 2014**,** 2, 18, 6649-6655 10.1039/C3TA15052F	14.511	118

28.	Loureiro, J.; Santos, J.; Nogueira, A.; Wyczisk, F.; Divay, L.; Reparaz, S.; Alzina, F.; Torres, C. M Sotomayor; Cuffe, J.; Montemor, F.; Martins R. and Ferreira I, **Nanostructured p-type Cr/V2O5 thin films with boosted thermoelectric properties,** Journal of Materials Chemistry A, 2014, 2, 18, 6456-6462 10.1039/C3TA15168A	14.511	24
29.	Martins, R.; Ahnood, A.; Correia, N.; Pereira, L.; Barros, R.; Barquinha, P.; Costa, R.; Ferreira, I., Nathan, A.; Fortunato, E.; ***Recyclable, Flexible, Low-Power Oxide Electronics*****,** Advanced Functional Materials, 2013, 23, 17, 2153-2161. https://doi.org/10.1002/adfm.201202907	19.924	145
30.	Gaspar, D; Pimentel, AC; Mateus, T; Leitao, JP; ….; Filonovich, SA; Aguas, H; Martins R. and Ferreira I., ***Influence of the layer thickness in plasmonic gold nanoparticles produced by thermal evaporation*****,** Scientific reports, 2013, 3 - Nature Publishing 10.1038/srep01469	4.996	112|10^3
31.	Santos, R; Loureiro, J; Nogueira, A; Elangovan, E; Pinto, JV; Veiga, JP; Busani, T; Fortunato, E; Martins, R; Ferreira, I; ***Thermoelectric properties of V2O5 thin films deposited by thermal evaporation*****,** Applied Surface Science**,** 2013, 282, 590-594 10.1016/j.apsusc.2013.06.016	7.392	97|111
32.	Martins R, Nathan A, Barros R, Pereira L., Barquinha P., Correia N., Costa R., Ahnood A., Ferreira I., Fortunato E., ***Complementary metal oxide semiconductor technology with and on paper,*** Advanced Materials, 2011, 23, 4491 10.1002/adma.201102232	32.086	276
33.	Aguas H.; Ram, SK; Araujo, A; Gaspar, D; Vicente, A; Filonovich, SA; Fortunato, E; Martins, R; Ferreira, I**. *Silicon thin film solar cells on commercial tiles,*** Energy& Environmental Science, 2011, (4) 11 4620-4632 10.1039/C1EE02303A	39.714	87
34.	Baptista, AC; Martins, JI; Fortunato, E; Martins, R; Borges, JP; Ferreira, I, ***Thin and flexible bio-batteries made of electrospun cellulose-based membranes,*** Biosensor & Bioelectronics, 2011, (26) 5, 2742-2745. 10.1016/j.bios.2010.09.055	12.545	53|96
35.	Ferreira, I; Bras, B; Martins, JI; Correia, N; Barquinha, P; Fortunato, E; Martins, R. ***Solid-state paper batteries for controlling paper transistors***, Electrochimica Acta 2011, (56) 3, 1099-1105 10.1016/j.electacta.2010.10.018	7.336	46|61
36.	Ferreira I, Brás B, Correia N, Barquinha P, Fortunato E, and Martins R, ***Self-Rechargeable Paper Thin-Film Batteries: Performances and Applications***, Journal of Display Technology 2010, (6) 8, 332-335 10.1109/JDT.2010.2056672	1.925	61|4982

*the citations included are obtained from google scholar-November 2022 and Reads (R) from paper source**

EARLY ACHIEVEMENTS TRACK-RECORD

The following publications have been selected from a list of publications over the last 10 years and represent the various innovative activities under my supervision/co-supervion as an Associate Professor. The full list can be found at the end of this document-Annex 1. The Journal Impact Factor numbers and citations are given, as well as the DOI to access the publication data. In the selected list of publications, all citations have been obtained from google academics, which includes self-citations but also a wider range of citation sources such as theses, patents and books.

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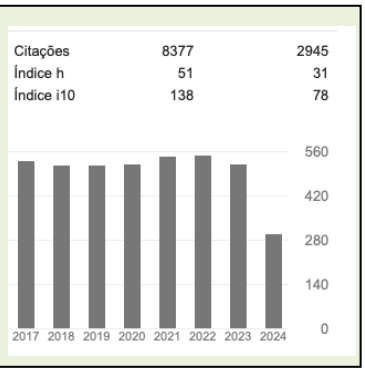
ResearcherID: G-3903-2011
Number of citations after PhD (2002) (**4421**), Average Citations (29) and h-index (**39**) source **WoS**
http://scholar.google.pt/citations?user=IGFiwGcAAAAJ&hl=pt-PT
Scopus Author ID 7102135213
http://orcid.org/0000-0002-8838-0364

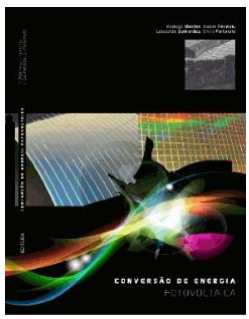
Date: July 2023



SELECTED PAPERS

BOOKS /BOOKS CHAPTER

1. Natural Nanofibres for Composite Applications, João, Carlos FC; Baptista, Ana C; **Ferreira, Isabel MM**; Silva, Jorge C; Borges, João P; Fibrous and Textile Materials for Composite Applications, 261-299, **2016**, Springer Singapore.
2. Nanofibers and nanoparticles in biomedical applications, A. Baptista; P. Soares; **I. Ferreira**; J.P. Borges; Bioengineered Nanomaterials (**2013**) 93, CRC Press.
3. Cellulose-based bioelectronic devices, Cellulose-Medical, A. Baptista; I. **Ferreira**; J.P. Borges; Pharmaceutical and Electronic Applications (**2013**) InTech.
4. Cellulose-based composite systems for biomedical applications, A. Baptista; **I. Ferreira**; J.P. Borges; Biomass based Biocomposites. UK: Smithers Rapra Technology (**2013**) 47-60.
5. R. Martins, V. Chu, E. Fortunato, J. Conde, **I. Ferreira**, "Proceedings of the Twenty First International Conference on Amorphous and Nanocrystalline Semiconductors Science and Technology", Elsevier, **2006**.
6. II Advance Materials Science Forum, R. Martins, E. Fortunato, **I. Ferreira** e C. Dias, Trans Tech Publications, (**2004**).
7. E. Fortunato, **I. Ferreira**, R. Martins, "Zinc oxide Thin Films Applied to UV light and Ozone Sensors", in Encyclopedia of Sensors, in American Scientific publishers, edited by C.A. Grimes, E.C. Dickey and M.V. Pishko and forwarded by Professor Rudolph A. Marcus, Nobel prize laureate in Chemistry. Vol.10 (**2006**), pp. 501-515.
8. E. Fortunato, L. Pereira, H. Águas, **I. Ferreira**, R. Martins. "Flexible a-Si:H Position Sensitive Detectors", in special issue on Flexible, Electronics Technology, edited by Arokia Nathan and Babu Chalama, Proc. IEEE, 93 (7), (**2005**) pp. 1281-1286.
9. R. Martins, **I. Ferreira**, E. Fortunato e L. Guimarães. "Materiais e Dispositivos Fotovoltaicos". "Os Materiais dos Anos 2000", edts P.J. Ferreira e M.A. Fortes, IST press pp. 305-316 (**2003**).



PATENTS

1. PAT 103670 C "Fabrication process of covalent semiconductors-ionic oxide semiconductors heterojunctions and their applications in optoelectronic devices, including solar " - R. Martins, I. Ferreira and E. Fortunato

2. 103936 U/PT, 21-01-2008 - "Development of a method to operate Tunable Color Sensors in order to achieve the maximum accuracy in detecting the color of a light beam", National-UNL, R. Martins, E. Fortunato, I. Ferreira, A. Tagliaferro.
3. PAT 40718/09, 104766, 29/09/2009, FCT/UNL, Dispositivo de produção e/ou armazenamento de energia baseado em fibras e filmes finos, R. Martins, E. Fortunato, I. Ferreira, J.P. Borges, A. Baptista, B. Brás.
4. PPI 40993/09 Device for energy Production and/or storage based in fibers and thin films Rodrigo Martins, Elvira Fortunato, Isabel Ferreira, João Borges, Ana Baptista, Bruno Brás.
5. PAT 104635/09 "Dispositivo electrocrómico e método para a sua produção "Electrochromic device and method for its production", Isabel Ferreira; Claúdia Costa; Elvira Fortunato; Rodrigo Martins; Inês Henriques.
6. PAT 41758/10 - Azulejos, telhas mosaicos e revestimentos cerâmicos fotovoltaicos, "Photovolotaics ceramics, tiles and ceramics covers" R. Martins, I. Ferreira, E. Fortunato, H. Águas, L. Gomes, V. Teixeira

SELECTED COMMUNICATIONS

C. Bianchi, A.C. Marques, R.C. da Silva, T. Calmeiro and I.Ferreira (oral presentation).,Transparent Photothermoelectric Thin Film Devices, *ITW2023*.

J. Loureiro, …, ***I. Ferreira***, Cutting-Edge Room Temperature Thermoelectric Properties of AZO Thin Films, Electronic Materials and Applications 2014, 22-24 January 2014, Orlando, FL, USA

J. Loureiro, …, ***I. Ferreira***, Thermoelectric modules using p-type CuZnO and n-type NiZnO thin film oxides, Electronic Materials and Applications 2014, 22-24 January 2014, Orlando, FL, USA.

R. Santos, … and ***I. Ferreira****, Influence of post-annealing on the thermoelectric properties of V2O5 thin films deposited by thermal evaporation, **E-MRS 2012 Spring Meeting**, 14-17 May 2012, Strasbourg, France

A.C. Baptista, J.P. Neto, J.I. Martins, E. Fortunato, R. Martins, J.P. Borges and **I. Ferreira**; Flexible and lightweight bioelectrochemical devices based on electrospun membranes. **EMRS-FALL MEETING 2011**, 19-23 September 2011, Warsaw, Poland

Isabel Ferreira, Elvira Fortunato and Rodrigo Martins, Nanoporous A/Nc-Si:H Films For Fuel Cell Applications - ***NANOSMAT – International Conference on Surface Coatings and Nanostructured Materials*** – July 2007

REVIEWING

Scientific Reports
ACS Applied Materials & Interfaces;
Plasma Sources Sci. Technol;
Sensors;
Biosensors and Bioelectronics;
Materials Chemistry and Physics;
Sensors & Actuators A and B;
Thin Solid Films; Vacuum;
Journal of Non-Crystalline Solids;
Materials Science and Engineering,
Nature Communications;
Journal of Electronic Materials,
Journal of Electrochemistry.

MC2 — SCIENTIFIC LEADERSHIP

The list of recently completed or ongoing projects as PI is given in the table below. A complete list of projects in which the candidate has been a team member or PI is given in ANNEX2, divided into national, international and collaboration with companies.

RUNNING/RECENT PROJECTS

Project Title	Funding source	Amount (Euros)	Period	Role of the PI	Partners
ERC-2020-POC-966685- INSOLENSYS- Integrated Solar Energy System,	ERC-POC grant	150000	2020-2023	Coordinator	Individual Grant
ERC-POC- 647596 CAPSEL– Cellulose Aluminium Polymer multi-ions composite Solid-electrolyte	ERC-POC Grant	150000	2018-20	Coordinator	Individual Grant
PIC3D - 150316 - Produção de Implantes Cerâmicos à base de zircónica por impressão 3D	P2020	394694	2017-2019	PI coordinator (at FCT-UNL)	INNOVNANO, FCT-UNL
ERC–CoS Grant: 647596-CAPTHERPV - Integration of Capacitor, Thermoelectric and PhotoVoltaic thin films for efficient energy conversion and storage;	ERC – CoS Grant	2000000	2015-2020	PI coordinator	Individual grant
H2020-ICT-2014-1: 645241-**TransFlexTeg** - Large area transparent thin film thermoelectric devices for smart window and flexible applications	Horizon 2020	780000/ 4000000	2015-2018	PI coordinator	UNINOVA-PT(Coordinator)-VTT(FI); Aalto (FI); CNRS(FR); PicoSun(FI); Agfa(BE); GrinP(IT); Solearth(IR); STREP(IR)

PROJECTS SUBMITTED AS PI

The following list of projects aims to illucidate the proactivity of candidate in trying to attract funding. One of the projects was submitted as individual grant, ERC-Advanced Grant, while all the others were submitted in consortia. Most of them were classified as the funding frontier.

PROGRAMME	CALL	FUNDING SCHEME	PROPOSAL ID	ACRONYM
HORIZON	HORIZON-EIC-2022-TRANSITION-01	HORIZON-EIC	101112582	NGW - New Green Wave
HORIZON	HORIZON-EIC-2022-TRANSITION-01	HORIZON-EIC	101098786	PREMIERE
HORIZON	HORIZON-EIC-2021-TRANSITIONOPEN-01	HORIZON-EIC	101057377	PREMIER
HORIZON	ERC-2021-ADG	HORIZON-ERC	101054042	E-CO2SAL
H2020	H2020-MSCA-ITN-2020	MSCA-ITN-ETN	955484	SMOOTH
H2020	ERC-2020-SyG	ERC-SyG	951273	Cer3DBONE
H2020	ERC-2019-ADG	ERC-ADG	883962	CONECT
H2020	H2020-MSCA-ITN-2019	MSCA-ITN-ETN	860918	SMOOTH
H2020	H2020-ICT-2018-2	RIA	825072	BioSmartSense

PHD STUDENTS AND POST-DOC SUPERVISION

Name	Topic	Situation	Funding	Supervision

PHD STUDENTS				
Junru Wang	Environment-friendly flexible zinc-ion batteries: engineering for improved performance and durability	PhD ongoing	KU-Leuven (Prof. Dr. Veerle Vandeginste)	Co-supervisor
Catarina Bianchi	Thin film thermoelectrics	PhD ongoing	ERC-Grant	supervisor
David Sousa	Synthesis of sulphide nanoparticles for different application	2023	ERC-Grant and *SFRH/BD/135948/2018*	supervisor
Ana Lima	Functionalisation of cellulose fibers with Porphyrins	2016	*SFRH/BD/81711/2011*	Co-supervisor
Paula Soares	Nanoparticles for hyperthermia	2015	SFRH/BD/79302/2011	Co-supervisior
Nuno Neves	Nanopowders for metal oxide targets	2014	QREN/INNOVNANO	supervisior
Ana Baptista	Bio-Batteries with electrospun fibres	2014	FCT- SFRH / BD / 69306 / 2010	supervisior
Javier Contreras	3d sensor for objects recognition	2013	FCT-SFRH/ BPD/95001/2013	supervisor
POST-DOC				
Vishal Barthi	Development of organic and NPs solar cells	2019-2021	ERC grant	Supervisor
Miguel Faustino	Development of TE materials and devices	2017-2021	ENIAC and H2020 projects	Supervisor
Ana Marques	Development of TE materials and devices	2017-2021	ENIAC and H2020 projects	Supervisor
Guilherme Gaspar	Development of nanoparticles solar cells	2017-2018	ERC-grant	Supervisor
Alexander Kovalenko	Development of nanoparticles solar cells	2016-2017	ERC-grant	Supervisor
Ana Baptista	Development of optoelectronic fibers by electrospinning	2015-2017	FCT-MCES-SFRH/BPD/104407/2014	Supervisor
Manuel Mendes	Plasmonic NPs for solar cells	2014-2016	Marie Curie-PIEF-GA-2013-629370 DIELECTRIC PV	Supervisor
Joana Loureiro	Development of TE materials and devices	2013-2018	ENIAC and H2020 projects	Supervisor

MASTER STUDENTS SUPERVISION

The following table shows the master's theses and their titles, as supervisor or co-supervisor. The wide range of topics is consistent with the candidate's expertise in a broad spectrum of functional materials, which is possible due to supervisor background in materials engineering. The most innovative work in the field of multifunctional materials, starting with students' Master's theses, is highlighted in blue.

Name	Title	Place	Master Course	Supervisors

2022/2023				
Maria Catita	3D printing ceramics for bone implants	DCM	Micro and Nanotechnologies	*I.Ferreira, A. Baptista*
Júlio Antunes	*Development of photosensitive fibers for photocurrent therapy*	DCM	Micro and Nanotechnologies	*A. Baptista I.Ferreira,*
Beatriz Lucas	*Supeconductive inks*	DCM	Electrotechnical Eng.	*I.Ferreira, Anabela Pronto*
Cristiana Lourenço	*pH-sensitive multifunctional coatings for metallic implants*	DCM	Biomedical Eng.	*I.Ferreira, A. Baptista*
Mariana Mendes	*Light-responsive on-demand drug-delivery systems for dermal applications*	DCM	Biomedical Eng.	*A. Baptista I.Ferreira*
Frederico Mar ques Ribeiro	*Study of superconducting paint for magnetic shielding*	DCM	Electrotechnical Eng.	*I.Ferreira, Anabela Pronto*
2021/2022				
Catarina C. do Carmo	*Controlled drug delivery for surface protection of prostheses*	DCM	Micro and Nanotechnologies	*I.Ferreira, A. Baptista*
Carolina Nascimento	*Fotoluminescent films for controlled drug delivery*	DCM	Biomedical Eng.	*I. Ferreira; A. Baptista*
Beatriz Almeida Lago	*Desenvolvimento de um penso dérmico de controlo eletrónico para a libertação de fármaco*	DCM	Biomedical Eng.	*A. Baptista; I. Ferreira,*
João Frazão	*3D supercapacitors: printing, integration and performances study (ongoing)*	DCM	Micro and Nanotechnologies	*I. Ferreira,*
Francisco Baptista	*Photovoltaic fibres for wearable energy harvesting applications*	DCM	Micro and Nanotechnologies	*A. Baptista; I. Ferreira*
Sara Gonçalves	*From cellulose-based waste to advanced materials*	DCM	AMIR	*A. Baptista, I. Ferreira*
Eduardo Varandas Oliveira	*Fabric based supercapacitors towards wearable applications*	DCM	Micro and Nanotechnologies	*A. Baptista; I. Ferreira*
2020/2021				
Joao Freire	*Anti-bacterial surface protection for protheses*	DCM	Micro and Nanotechnologies	*I. Ferreira*
Margarida Barbosa	*Multilayer coatings for temperature management through glass windows of buildings*	DCM	Materials Engineering	*I. Ferreira,*
Maria Silveira	*3D Printing of YBCO-Based Superconductors*	DCM	Materials Engineering	*I. Ferreira,*
Joao Henriques	1D Fiber-shaped supercapacitors http://hdl.handle.net/10362/134704	DCM	Micro and Nanotechnologies	*Ana Baptista, I.Ferreira*
Pedro Cabral	*Ink and films application on glass windows for temperature and light management of buildings*	DCM	Materials Engineering	*I. Ferreira,*
2019/2020				
Miguel Brito	*Development of functionalized membranes for controlled drug release in topical applications*	DCM	Biomedical Eng.	*I. Ferreira*
Andreia Carvalho	*Comprehend the Optical, Morphological, and Electrical Characteristic of Air Processed Polymer Solar Cells*	DCM	Materials Engineering	*Vishal Bari, I.Ferreira,*
2018/2019				
Guilherme Costa	*3D printed graphene based supercapacitors http://hdl.handle.net/10362/92312*	DCM	Materials Engineering	*I. Ferreira,*
João Carmo	*Paper solid electrolyte with Al ions*	DCM	Chemistry and Biochemistry Master	*I. Ferreira,*
Eduardo Pontes	*Printing of 3D Structures for Bone Regeneration from Ceramic Pastes*	DCM	Biomedical Eng.	*I. Ferreira*

Diogo Mendes	*3D of superconductor materials*	DCM	Renwable Energy Master	*I. Ferreira*
Ana Paula Pinheiro	*3D printed cartilage for prosthetics applications*	DCM	Biomedical Eng.	*I. Ferreira, A. Baptista*
Bruno Miguel Dionísio	*Coatings to protect the formation of biofilms on metallic and polymeric prostheses*	DCM	Biomedical Eng.	*I. Ferreira, A. Baptista*
2017/2018				
Diogo Miguel Esperança Garcia	*Development of Large Area Paper Batteries*	DCM	Materials Engineering (19/20)	*I. Ferreira/ Claudia Simão*
Pedro Duarte	3D Printing of Biocompatible Polymers	DCM	Biomedical Eng. (17/20)	*I. Ferreira/ Ana Baptista*
Davide Maglietta	Magnesium Silicide: a novel, silicon-based material for printable thermoelectric devices	DCM	Ingegneria dei Materiali, Politecnico de Torino (20/20)	*I. Ferreira, Fabricio Giorgis*
Priscilla Gonçalves Calmeirão	*Energy production on a Microbial Fuel Cell with Serratia marcescens, using conductive fabric as electrodes*	DCM	Micro and Nanotechnologies Eng. (16/20)	*I. Ferreira, Carla Carneiro*
2016/2017				
Diogo Gomes	*CuI as a transparent p-type thermoelectric material*	DCM	Materials Engineering (17/20)	*I. Ferreira, M. Faustino*
Filipe Silvestre	*Development of a multi-material 3D printing system with integrated post-prodution procedures*	DCM	Materials Engineering (18/20)	*I. Ferreira*
Maria Bruxelas	*Graphite-3YSZ supercapacitor/battery*	DCM	Micro and Nanotechnologies Eng. (18/20)	*I.Ferreira*
Ana Sofia Taborda	*Development of multifunctional celulose fibers membranes.*	DCM	Biomedical Eng. (17/20)	*I. Ferreira, A. Baptista*
2015/2016				
Catarina Castro	*Fluorescent membranes for medical applications*	DCM	Biomedical eng. (17/20)	*A. Baptista, I. Ferreira*
António Almeida	*Development of graphene super capacitors*	DCM	Micro and Nanotechnologies Eng. (18/20)	*I. Ferreira,*
Ana Gaspar	*Development of materials by 3D printing* *http://hdl.handle.net/10362/88345*	DCM	Micro and Nanotechnologies Eng. (17/20)	*I. Ferreira,*
Sofia Chamiço	*Electroactive organic materials http://hdl.handle.net/10362/97474*	DCM	Micro and Nanotechnologies Eng. (17/20)	*I. Ferreira,*
Ana Figueiredo	*Growth of Vanadium Dioxide (VO_2) Nanostructures by Controlling the Hydrothermal Synthesis Parameters*	TE-OX, France	Micro and Nanotechnologies Eng. (18/20)	*Guy Guerry, I. Ferreira*
Gonçalo Ritto	*Growing of biomorphic nanomaterials based on calcium carbonate http://hdl.handle.net/10362/20676*	DCM	Micro and Nanotechnologies Eng. (17/20)	*I. Ferreira,*
2014/2015				
Joana Nobre	*Biomedical device for drug controlled delivery based on celulose fibers*	DCM	Biomedical Eng. (16/20)	*I. Ferreira, J. P. Borges*
Tomás Correia	*Electronic control of drug delivery with conductive membranes of celulose acetate*	DCM	Biomedical Eng. (18/20)	*I. Ferreira, A. Baptista*
Susana Oliveira	*"Biomimetic mineralization: encapsulation in calcium carbonate shells" http://hdl.handle.net/10362/16106*	DCM	Micro and Nanotechnologies Eng. (19/20)	*I. Ferreira, J. P. Borges*
Inês Ropio	*"Biobaterias alimentadas por glucose para aplicações médicas"*	DCM	Biomedical Eng. (18/20)	*I. Ferreira, J. P. Borges*

Catarina Bianchi Marques	*"Flexible and Transparent Thermoelectric Temperature Sensor" student of Master in Materials Engineering.*	DCM	Materials Eng. (17/20)	*J. Loureiro, I. Ferreira*
Daniel Pereira	*Control of a White Organic Light Emitting Diode's emission parameters using a single doped RGB active layer*	Uni. Aveiro	Nanotechnologies Eng. (18/20)	*Luiz Pereira, I. Ferreira*
Afonso Ferreira	*Perylene Diimide acceptors: Fabrication and characterization of electron-only, hole-only devices and solar cells*	Max Planck Institute	Micro and Nano-technologies Eng. (17/20)	Paul Blom, I Ferreira
Filipa Belo	*Biobateries made of celulose nanofiber using glucose as electrolite for biomedical applications*	DCM	Biomedical Eng. (17/20)	*A. Baptista, I. Ferreira*
2013/2014				
Catarina Nunes	*Hybrid system photovoltaic / wind / diesel applied to a ship: economical, energetic and environmental study*	DCM	Bioenergy Master (18/20)	*I. Ferreira*
Joana Figueira	*Thermoelectric materials thin films based on VxOy"*	DCM	Materials Eng. (16/20)	*J. Loureiro, I. Ferreira*
Tiago Vigia	*Thermoelectric window*	DCM	Energy Master DEE (16/20)	*I.Ferreira, V.Neves*
2012/2013				
Beatriz Romba	*Cellulose membranes funcionalized to electronic controlled drug delivery*	DCM	Biomedical Eng. (18/20)	*I.Ferreira, J. P. Borges*
Alexandra Rodrigues	*Synthesis, characterization and application of graphene oxide suspensions.*	DCM	Materials Eng. (17/20)	*I.Ferreira, J. P. Borges*
Vanessa Oliveira	*Thin film oxides materials*	DCM	Materials Eng. (17/20)	*I. Ferreira*
Ricardo Oliveira	*Optimization of nanocrystalline and amorphous silicon tandem soalr cells*	DCM	Energy master DEE (17/20)	*I.Ferreira, V. Neves*
Joao Franco	*Improvement of amorphous silicon solar cell with plasmonic nanoparticles*	DCM.	Energy master DEE (15/20)	*I.Ferreira, V.Neves*
Lucia Ferreira	*Development of hidrophobic surfaces produced by low cost techniques*	DCM	Materials Eng. (18/20)	*I. Ferreira*
2011/2012				
Alexandre Botas	*Fluoerescent Membranes for regenerative phototherapy*	DCM	Biomedical Eng. (18/20)	*I.Ferreira, J. P. Borges*
Ana Alves	*Development of quitosane based magnetic nanoparticles for cancer treatment by hipertermia.*	DCM	Biomedical Eng. (17/20)	*J. P. Borges, I. Ferreira*
Ana Manjua	*Electronic Biodevices implantable and biodegradable*	DCM	Biomedical Eng. (17/20)	*I.Ferreira, J.P. Borges*
Carla Duque	*Thermoelectric thin films elements*	DCM	Energy of DEE (16/20)	*I.Ferreira, V.Neves*
2010/2011				
Ana Raquel Vitorino	*Thermal studies in solar cells for concentrators*	MAGPOWER,	Materials Eng. (16/20)	*I. Ferreira*, A. Sobral
Hugo Fernandes	*Thermal energy recovery in PV concentrators systems*	MAGPOWER	Materials Eng. (18/20)	*I.Ferreira*, A. Sobral
Joao Rafael Santos	*Production of thermochromic/thermoelectric thin film devices*	DCM	Materials Eng. (18/20)	*l. Ferreira*
2009/2010				
Adriana Nogueira	*Production and characterization of thermoelectrics/thermochromics materials*	DCM	Materials Eng. (17/20)	*I. Ferreira*
Joana Pereira	*Characterization of TiO_2 nanopowders envisaging toxicology studies*	DCM	Materials Eng. (17/20)	*I. Ferreira*
Jair Marques	*Monitoring and optimization of the energy produced by photovoltaic systems*	ISEL/ CENIMAT	Materials Eng. (17/20)	*I. Ferreira*, L. de Oliveira

Joana Neto	*Production of bio-batteries for medical applications*	DCM	Biomedical Eng. (18/20)	*I. Ferreira, J. P. Borges*
Tiago Mateus	*Optimization of Si-a solar panels*	Solar Plus	Materials Eng. 17/20)	*I. Ferreira*, H. Castro
Mario Guimarães	*Monitorization of PV systems based on amorphous silicon technology*	Solar Plus	Materials Eng. (17/20)	*I. Ferreira*, H. Castro
2008/2009				
Diana Gaspar	*Development of solar cells based on nanostrucured Si for application in solar tiles*	DCM	Materials Eng. (18/20)	*I. Ferreira*, H. Águas
Bruno Brás	*Thin Film paper batteries and applications to thin film transistors, Has got the 3th place in the contest of "Best probation in Materials Engineering at National level"*	DCM	Materials Eng. (20/20)	*I. Ferreira*
Ana Baptista	*Production of Bio-batteries using membranes obtained by electrospinning, Has got the 1st place in the contest of "Best probation in Materials Engineering at National level"*	DCM	Biotechnology (19/20)	*I. Ferreira, J. P. Borges*
2007/2008				
Helena Orvalho	*Determination of hydrogen permeation through parabolic trough absorbers and the influence of barrier coatings*	SCHOT T–solar Germany	Materials Eng. (18/20)	*I.Ferreira*, K. Silmy
Sofia Carvalho Garvão	Development of a new selective absorber coating system for parabolic trough receiver via magnetron sputter	SCHOT T-Solar, Germany	Materials Eng. (18/20)	*I.Ferreira*, K. Silmy
2006/2007				
José Carlos Valadas	*Production and characterization of electrochromic windows*, *(Honour mention-3th classification in the contest of Jornadas do Mar -Escola Naval, 2008)*	DCM	Materials Eng. (17/20)	I. Ferreira, E. Fortunato
Lúcia Gomes	*Production and characterization of semi-transparent solar cells* *(Honour mention)-2th classification in the contest of Jornadas do Mar -Escola Naval, 2008)*	DCM	Materials Eng. (18/20)	I. Ferreira, H. Águas
Tânia Silva	*Photovoltaic systems: analysis of acquired data and of working problems*	EDP INOVAÇÃO	Materials Eng. (16/20)	I. Ferreira, J. Maciel
2005/2006				
Carla Sofia Carrelo Marinho	*Selective absorbing surfaces with organic pigments*,	INETI – R.Energy	Materials Eng. (16/20)	I. Ferreira, C. Nunes
Tânia Sofia Rodrigues Cardoso	*Recycling wind generators and parks: recovering and reprocessing materials at end life cycle of systems*.	INETI-R. Energy	Materials Eng. (17/20)	I.Ferreira, A. Estanqueiro
2004/2005				
Raquel Nogueira	*Anemometric of metallic mast: degradation of materials by corrosion*,	INETI-R.Energy Dep.	Materials Eng. (17/20)	I. Ferreira, A. Estanqueiro
Sílvia Malcato	*Project and selection of materials to a low cost rotor for wind generator*,	INETI-R.Energy Dep.	Materials Eng. (17/20)	I. Ferreira, A. Estanqueiro
2002/2003				
Pedro Percheiro	*Behaviour of powders with high CV in mass production*	EPCOS-Évora	Materials Eng. (16/20)	*I.Ferreira*, J. Pedroso

MC3 - SCIENTIFIC RECOGNITION

The scientific recognition can be taken from the summary of the R&D activity table given in page 2 ***(summary of the r&d activity***). Here were added elements related with specific topics:

INVITATIONS FOR *INVITED TALKS*

To avoid a long list, only invitations for 2023 are listed, which is the average number of invitations per year.

1- "6th International Conference on MATERIALS SCIENCE & NANOTECHNOLOGY" which will be organized on September 06 - 07, 2023 in Rome, Italy (Venue: BELSTAY ROMA AURELIA).
2- 2nd International Meet & Expo on Polymer Science and Composite Materials (POLYMERMEET2024) which will take place on April 18-20, 2024 in Osaka, Japan.
3- Polymer Science and Engineering Conference Scheduled in San Francisco, CA on November 01-03, 2023.
4- 2nd International Summit on Lasers, Optics & Photonics (ISLOP2024) which is going to be held during April 22-24, 2024 in Munich, Germany.
5- 6th International Conference on Materials Science & Nanotechnology (ICMSN 2023), which will be organized on September 06 - 07, 2023 in Rome, Italy (Venue: BELSTAY ROMA AURELIA)
6- "International Conference on Materials Science & Engineering (Materials-2024)
7- 8th International Webinar on Chemistry and Pharmaceutical Chemistry July 08-09, 2023**.**
8- International Meet on Industrial and Manufacturing Engineering (INDUSTRIALMEET2024).
9- "International Conference on Biomaterials Science and Tissue Engineering (ICBST23)" – during July 24-26, 2023 in Osaka, Japan.
10- Global Congress on Biotechnology, Biomaterials and Bioscience GCBBB2023 during August 03-05, 2023in London, UK
11- Global Expert Meetings on Polymer Science (GEMPOLYMER2023)" as an Invited Speaker which will be held in Paris, France during June 12-14, 2023.

ORGANIZATION OF CONFERENCES

14th EUROPEAN CONFERENCE ON THERMOELECTRICS (ECT2016), Instituto Superior Técnico (IST/C2TN), Lisbon, Portugal, 20-23 September 2016: Member of the Local Organizing Committee.

Local Organizing Committee

A.P. Gonçalves, Chairman (IST, Univ. Lisbon)
E.B. Lopes (IST, Univ. Lisbon)
F.M. Costa (Univ. Aveiro)
F.P. Brito (Univ. Minho)
I. Ferreira (FCT, New Univ. Lisbon)
L.M. Gonçalves (Univ. Minho)

http://www.ctn.tecnico.ulisboa.pt/ect2016-conference/committees.html

Workshop of transparent this film thermoeletrics, project TRANSFLEXTEG 2016.

"21st International Conference on Amorphous and Nanocrystalline Semiconductors-ICANS 21", Lisboa, Fundação Calouste Gulbenkian, Portugal, September 4-8, 2005. - Chairs: R. Martins (FCT-UNL, Portugal), E. Fortunato (FCT-UNL, Portugal), **I. Ferreira** (FCT-UNL, Portugal), V. Chu (INESC, Portugal), J.P. Conde (IST, Portugal).

11th Portuguese Materials Research Society Conference, 2nd International Materials Symposium, Lisbon, Portugal, Campos de Caparica, April 14-16, 2003. - General Chair: R. Martins (FCT-UNL, Portugal).

PARTICIPATION OF PHD JURIES

DAVID MAGALHAES SOUSA, Development of a template-free microwave-assisted metal sulfide nanoparticles synthesis method and film deposition with formulated inks, PhD Thesis in Materials Science and Engineering, February 2023, FCT-UNL, supervisor

KUSH KUMAR UPADHYAY, Metal Oxides and sulfides based materials active in negative potential window for Supercapacitors, 20-09-2018, IST, ULisboa, arguing.

MONIKA MALGORZATA TOMCZYK, Designing 2D functional materials for future microelectronics applications, PhD Thesis in Materials Science and Engineering, April 2017, UAveiro, arguing

ANA FILIPA BENEDITO ASSUNÇÃO "Biological and chemical strategies for the recovery of precious and rare metals as nanoparticles", *PhD in Sea, Earth and Environment Sciences*– member of Juri (2016), UAlgarve.

NUNO MIGUEL PINTO DAS NEVES, "Al-Doped ZnO ceramic sputtering targets based on nanocrystalline powder produced by emulsion detonation synthesis, deposition and application as a transparent conductive oxide material", *PhD in Science and Materials Engineering*, June 2015. FCT-UNL member of Juri (supervisor)

ANA CATARINA BERNARDINO BAPTISTA, Development of Bio-batteries based on electrospun membrannes, *PhD in Science and Materials Engineering*, December 2014 , FCT-UNL member of Juri (supervisor)

JAVIER CONTRERAS APARICIO, Amorphous silicone 3D sensors applied to object detection, *PhD in Science and Materials Engineering*, October 2014, FCT-UNL, member of Juri (supervisor).

JOÃO MIGUEL NOVAES MARTINS PINTO DA COSTA, Bio-synthesis of nanosized semiconductors using mine wastes as metal sources, *PhD in Sea, Earth and Environment Sciences* - (Marsh 2014), UAlgarve. Arguing.

GONÇALO GONÇALVES, Desenvolvimento de Novos TCOs para Aplicações em OLEDs, PhD Thesis in Nanosciences and Nanotechnologies at Universidade Nova de Lisboa, 2011. (Member)

MIGUEL FERNANDES, "Sensores de Imagem de grande área em tecnologia de silício amorfo", PhD Thesis in Materials Engineering at Universidade Nova de Lisboa, 2008: Member

LUÍS PEREIRA, "Produção e caracterização de silício policristalisno e sua aplicação em TFTs", PhD Thesis in Materials Engineering at Universidade Nova de Lisboa, 2008: Member

LEANDRO RANIERO, "Produção e caracterização de células fotovoltaicas de silício polimorfo produzidas por plasma de 27 MHz", PhD Thesis in Materials Engineering at Universidade Nova de Lisboa, 2006: Member

HUGO ÁGUAS, Dispositivos de Estrutura: Metal-Isolante-Semicondutor: Aplicação a Sensores de Posição. PhD Thesis in Materials Engineering at Universidade Nova de Lisboa, 2005: Member

MSC JURIES AS ARGUENT

1. João Luís Camacho Baptista Figueira, Ruthenium and Palladium based organometallic materials for nanoelectronic applications, FCT-UNL, 2011.

2. Joel Ribeiro Casalinho, Rendimento de painéis solar térmicos poliméricos unglazed e glazed, Universiade de Aveiro, 2009.
3. Ricardo Pinho Silva, Células Solares Orgânicas baseadas em MEH-PPV, Universidade de Aveiro 2009. As member.
4. Ana Margarida Luz, Análise de Limpeza Manual das Lentes Desblocadas por Impacto e Fusão da Liga Metálica, FCT-UNL 2009.
5. MARIA CONCEIÇÃO, MSc Thesis in Management and Quality of Materials at Universidade Nova de Lisboa, 2003. As supervisor.

MSC JURIES AS SUPERVISOR

All students that I supervised

PEER REVIEWING OF PROJECTS

Czech Science Foundation | GACR | Department of Technical Sciences, 2023
PhD grants panel of 2022 – Fundação para a Ciência e Tecnologia.
Evaluator panel member of project SMART GREEN HOMES [POCI-01-0247-FEDER-007678]
P2020 evaluation of P2020 projects, 2016-2019
Evaluation of PhD and Pos-doc grants Russia 2015 -2017
Evaluation of PhD and Pos-doc grants DTU 2014-2017
Member of evaluation panel of "ERC Starting Grants" – European Research Council 2007-2012.
Reviewer of the FP7 Energy projects (2011) Swedish Foundation for Strategic Research

PRIZES

Honour Mention in the *Green Awards 2011*, with the paper battery concept.
Best poster award 2011 from E-MRS Fall Meeting for the work "Aluminum-doped zinc oxide – AZO sputtering targets obtained from nanopowders: processing and application" by N. Neves, R. Barros, E. Antunes, I. Ferreira, E. Fortunato and R. Martins
Best poster award 2011 from E-MRS Fall Meeting for the work "A study of various deposition parameters for achieving a better control over fabrication of single and multilayer protocrystalline Si absorber film" by A. Vicente, S. K. Ram, B. Diaconu, D. Gaspar, S. A. Filonovich, A. Araújo, H. Águas, I. Fereira, E. Fortunato, R. Martins.
JID best paper award 2010 from Korean Information Display Society to the work "Self- sustained n-Type Memory Transistor Devices Based on Natural Cellulose Paper Fibers" by R. Martins, L. Pereira, P. Barquinha, N. Correia, G. Gonçalves, I. Ferreira, C. Dias, N. Correia, M. Dionísio, M. Silva and E. Fortunato.
Honour mention-3th classification in the contest of Jornadas do Mar -Escola Naval, 2008
Honour mention-2nd classification in the contest of Jornadas do Mar -Escola Naval, 2008
Best poster award for the work: "Effect of the deposition pressure on the morphological properties presented by ZnO:Ga thin films deposited by rf magnetron sputtering" - PVSEC- 14 Thailand, by E. Fortunato, V. Assunção, A. Gonçalves, A. Marques, A. Pimentel, H. Águas, L. Pereira, I. Ferreira, R. Martins, 2004

MC4 – SOCIAL AND ECONOMIC IMPACT OF THE SCIENTIFIC ACTIVITY

Although listed in a specific topic, the scientific activity related to societal impact has also been mentioned in previous topics, such as "Projects submitted as PI", where most projects were submitted in consortia, and the EIC programme, which refers to the follow-up of prototypes developed in ERC-POC grants with different companies interested in the work carried out by the candidate group. “Patents" also shows the innovative research carried out and the projects involving companies, both Portuguese and European, as well as other collaborations.

SCIENTIFIC BOARDS & ADMINISTRATIVE POSITIONS

Member of the Board of examinations and competitions 2023
Member of the scientific council of NOVA SCT (2022-present)
Member of Scientific board of the Materials Engineering Course, 2020-2021
Member of the scientific board of DCM (2002-2014)
Member of Scientific board of CENIMAT/I3N (2008-2014)
Member of the Scientific and Technological board of *Lógica, E.M*. (Portuguese enterprise associated with certification and test of solar clell panels, installed in Moura, Portugal) (2013-2014)
Member of the executive board of the Materials Science Department-DCM (2008-2015) - responsible by the coordination of activities related to dissemination, organization of events, and maintenance of laboratories and infrastructures.
Member of the executive board of CENIMAT as Sub-director (2008-2014) - responsible by the coordination of the annual scientific reports, organization of events and dissemination.
Responsible for group of Electronic Materials and Nanotechnologies, formed by 6 Professors (2006-2013).
Coordination of Master Course in Micro and Nanotechnology of FCT-UNL (2013-2015) experience in dealing with students problems

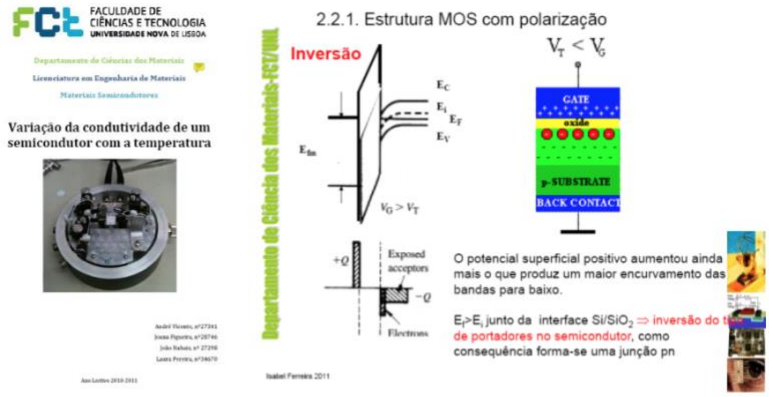
PM - PEDAGOGICAL MERIT

TEACHING STATEMENT

The teaching experience began in 1989 as a monitor at Department of Materials Science of the Faculty of Sciences and Technology of the New University of Lisbon and the academic career followed the conventional steps: first stage assistant, assistant after public examination, and assistant professor after the PhD. Typically, according to the established Portuguese rules, a monitor assists professors in laboratory classes, assistants assist professors in practical classes (both problems and labs), and only after the PhD can the responsibility for theoretical classes be taken over. Therefore, after PhD, I started to be responsible for the following curricular units: "Semiconductor Materials", "Surfaces and Interfaces" and "Materials for energy conversion and conservation" which are still the main course units taught in recent years. These are based on the knowledge acquired in the field of multifunctional materials, including the development of organic and inorganic materials and their applications. The number of Masters students and their thesis topics are included in the table "Supervision of master students". Among those mentioned in table I have the responsibility (since 2015) of the curricular unit "PIIP-Programme of Introduction to Professional Practice", it is a quarterly curricular unit, intercalar between semesters, in which students of the 3rd year of Micro and Nanotechnologies are assigned to different companies to have 80 hours of practice in the training area of the course, this unit has 3 ECTS. It is necessary to establish contacts with the companies in order to find the necessary vacancies for the students enrolled in the UC.
Note: *All the courses I am responsible for have teaching and support materials produced by me.*

SEMICONDUCTOR MATERIALS

This course focus on the fundamental concepts of semiconductor materials and provides the background for te students of the two integrated MSc courses under the responsibility of DCM: Micro and Nanotechnologies (*MIEMN*) and Materials Science (*MIEM*). The course starts with the physical principles of semiconductors, the materials and their properties, and basic electronic elements such as pn and Schottky diodes. It then ends with generic applications in devices such as solar cells. Organic semiconductor materials are also covered in this course.



Example of a lab report and a slide related with the metal oxide semiconductor structure.

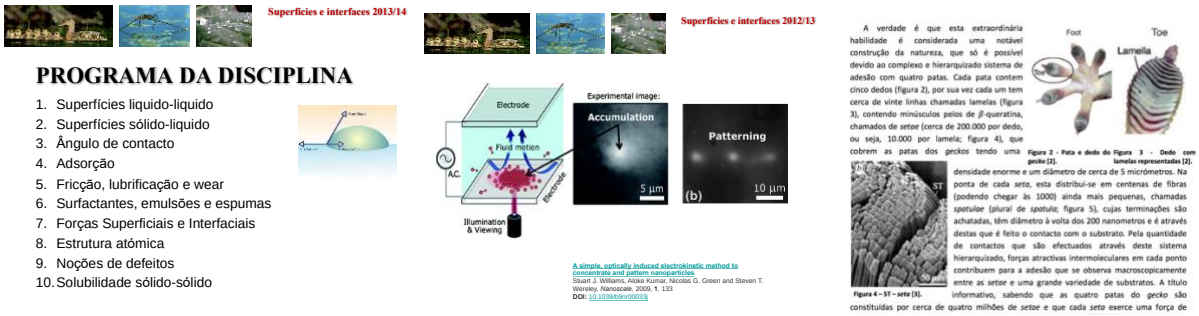
In addition to the reorganisation of the course, the teaching materials were all developed/reformulated by me when I started teaching this course:

- The first power points are rewritten every year to include missing information and to improve the explanation of the topics taught;
- The initial laboratory sessions are adapted each year to avoid copying from previous years;

- Problems and their variables are developed each year.

SURFACES AND INTERFACES

This unit has been proposed and designed by the candidate taking into account the needs of the students of the Integrated Master in Micro and Nanotechnology Engineering. The phenomena related to surfaces and interfaces are the topics taught: capillarity; liquid/solid surfaces; wettability; contact angle; generic adsorption; gas-solid adsorption; positive and negative adsorption; surface tension; surfactants, segregation; surface roughness; solid-solid friction; wear; organic and inorganic surface analysis; coordination and atomic energy of surfaces; surface tension anisotropy. Solid state solutions and interface component is taught by another colleague.



From left to right, lesson slide images (program of course and class on interaction of light with nanoparticles) and a monograph made by students.

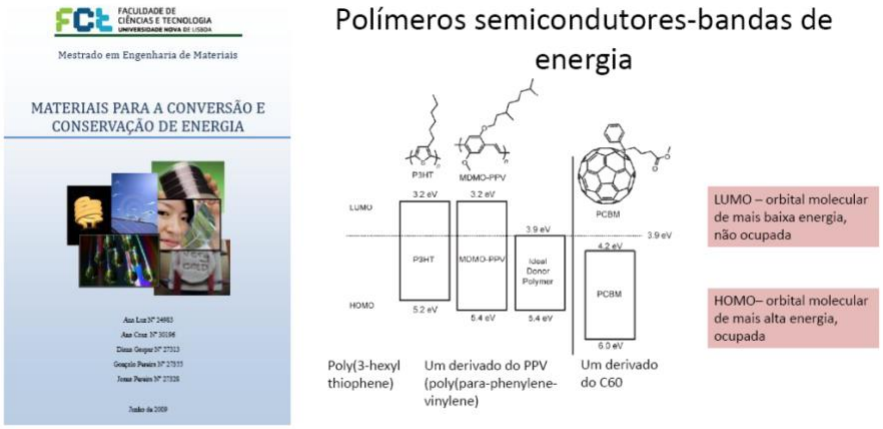
As a teacher, my practice is always focused on helping students acquire not only the scientific knowledge necessary for their future professional skills, but also critical thinking and teamwork skills. In this respect, a video of materials and nature is disseminated to create seeds for students to get interested in materials based on mimicking nature.

Course organisation and teaching materials (produced by me) include:

- Power points, which are reformulated every year to take into account the doubts raised by the students of previous year, in order to improve the explanation of the subjects taught.
- Laboratory classes which include the preparation of laboratory experiments and their reformulation to avoid copied reports

MATERIALS FOR ENERGY CONVERSION AND CONSERVATION

This curricular unit was under the responsibility of the candidate until 2019 and was mandatory in the curricula of Materials Science Engineering and optional in Micro and Nanotechnologies. The content includes the photovoltaic component: crystalline and amorphous silicon solar cells; organic; organic-inorganic (dye-sensitised); and new solar cell concepts. Materials for thermoelectric conversion, hydrogen production, electrochemical conversion, and thermosolar are also other topics included.

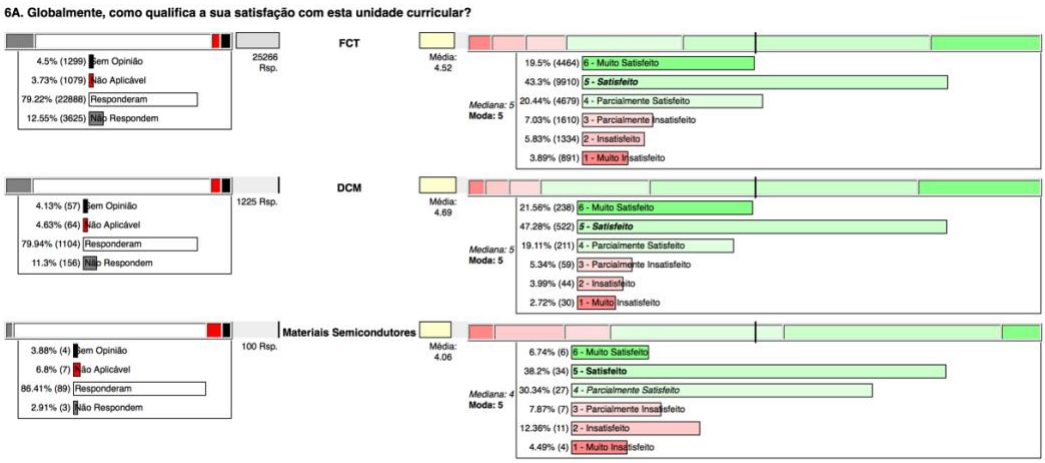


Example of a lab report and a slide of a class related with polymeric solar cells.

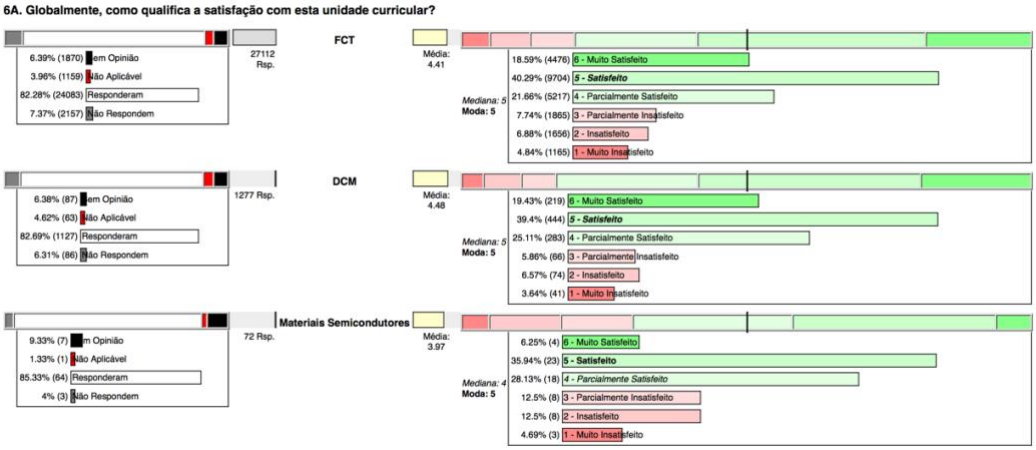
The organisation of the course and the teaching materials were developed by me, including, power points, problems and labs. Since 2019, this curricular unit has been given to another colleague, but the organization of the matterials, power-points, problems and laboratory classes have remained the same.

ASSESSMENT BY THE STUDENTS.

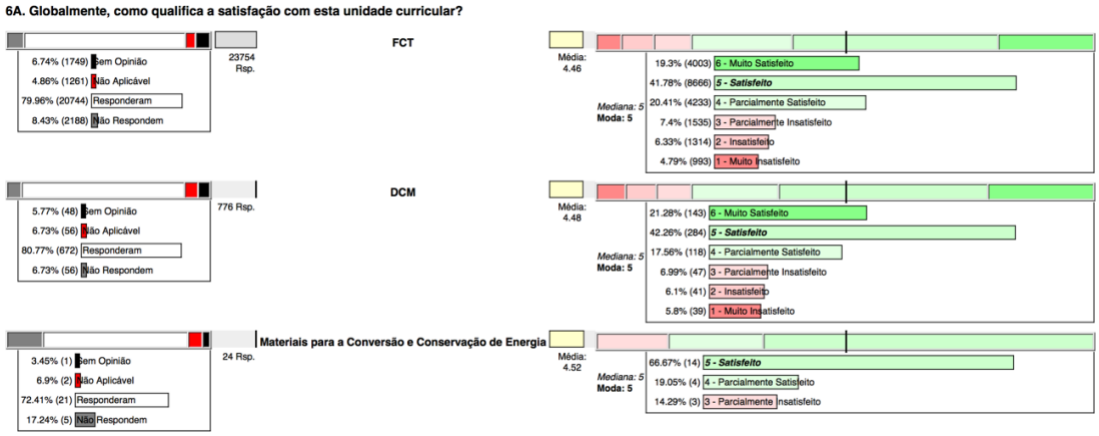
An example of evaluations students of the courses is given. As a note, for the course Semiconductor Materials, the evaluations of 2015/16 and 2014/15 are included because a remarkable increase in the number of students happen from 14/15 to 15/16 and a comparison of evaluations is important to verify how it affects the overall appreciation of the course by the students. Therefore, the evaluation of all courses is shown for the year 2014/15 and for the first semester of 2015/2016. Only the overall assessment has been included for clarity and the evaluation of the courses are compared with the average DCM (average of all courses of DCM) and also the average of FCT - UNL also.



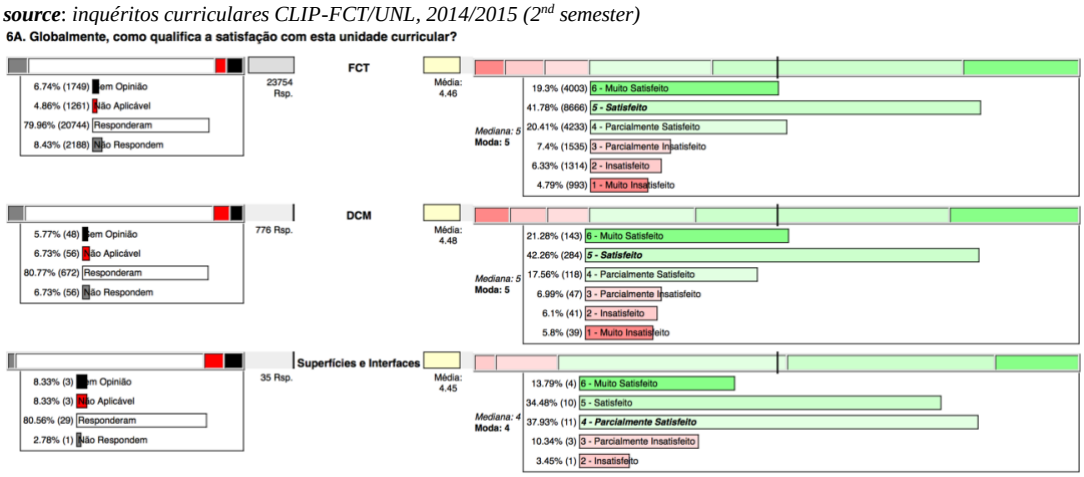
source: *inquéritos curriculares CLIP-FCT/UNL, 2015/2016 (1st semester)*



source: *inquéritos curriculares CLIP-FCT/UNL, 2014/2015 (1st semester)*



source: *inquéritos curriculares CLIP-FCT/UNL, 2014/2015 (2nd semester)*



Overall, the students' assessment of the course is in line with the FCT and DCM averages, although the Semiconductor Materials course is slightly below, but given the difficulty of the subject and the independent work required of the students, I consider this to be a good result – especially as it becomes more difficult, as the number of students increases, to expose the content and articulate it with laboratory practice.

MOAR - MERIT OF OTHER RELEVANT ACTIVITIES

SPREAD SCIENTIFIC INFORMATION IN THE EDUCATIONAL COMMUNITY

During the years of 2000 I have been strongly involved in the dissemination activities of the Materials Science Department at the high schools as well in promoting events related with DCM global research and teaching activity coordinated by FCT-UNL or promoted by CENIMAT/I3N to which I would like to highlight annual events such as:

- Open day Organized by FCT;
- The Summer School event organized by CENIMAT under the auspices of the Portuguese National Science Foundation;
- The week of Education and Science, promoted by Almada Municipality

Several invitations to give talks at Secondary School and Workshops, some examples are: LOGICA (Moura, Portugal)- workshop in renewable energy "O Futuro da Energia fotovoltaica em Portugal_ The Future of photovoltaic Energy in Portugal" INOVA – workshop organized by BEST at FCT-UNL "Materiais para a produção ecológica de energia -Materials for ecological energy production" – May 2007
Several talks were given at secondary school as an example: "Relevance of Materials Engineer in the actual society" given to:

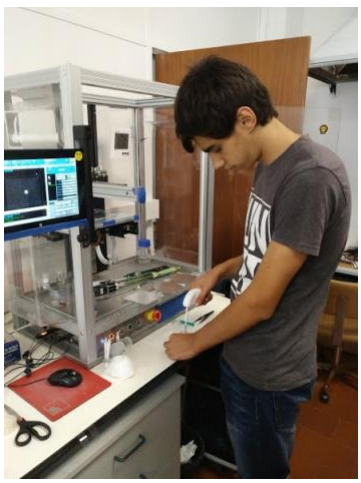
- Escola Secundária Monte de Caparica - Weak of Sciences" – Fev 2005; Talk: Renewable Energies.
- Escola Secundária de Santo André" – Weak of Sciences" – Jun 2005; Talk: Renewable Energies.
- Escola Secundária Anselmo de Andrade" – Environment day – Jun 2007; Talk: Renewable Energies.

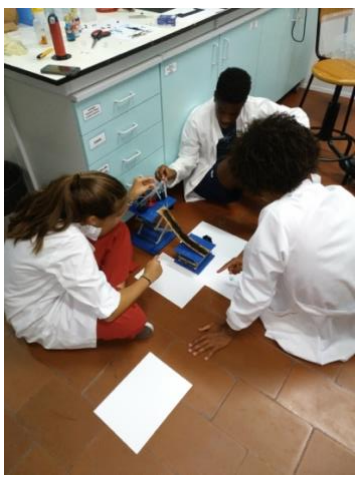
Organization of visits to secondary schools and visits of students to Department of Materials Science, for which I was involved in the realization of several material for promotion such as **flyers, poster and outdoors**, and experiments/materials demonstrations

PROGRAM "CIÊNCIA VIVA"

The candidate has been responsible for the organization at CENIMAT of the program "Ciência Viva" that aims to bring students from the high schools to spend one week at CENIMAT integrated in specific research activities since the beginning of the programe up to 2013. Below are some examples of these activities (the ones which I'm also the responsible):
"770. Electrónica Transparente; 771. Sabias que podes fazer electrónica com uma impressora a jacto de tinta?; 772. Janelas inteligentes à base de materiais electrocrómicos; 773. Nanotecnologias – ver com electrões e fazer com iões; 1218. Olhos mágicos que detectam ADN; 1849. Sabias que os pixeis do teu PC podem detectar pH e ADN?; 2053. Produção de nanofibras para aplicações médicas"

In 2014, the responsibility of organizing this event was given to another colleague, but I continued to participate with the responsibility of organizing courses 4-5,. Some photos as an example of student activities in 2017:
"1508. Energias renováveis: fabrico de células solares fotovoltaicas; 1510. Produção e caracterização de bio-baterias; 1770. Baterias de papel; 2037. Produção e caracterização de óxidos termocrómicos: courses of my responsability (2011-2017)".





3D printing (left) and Hydrophobic surfaces (right)

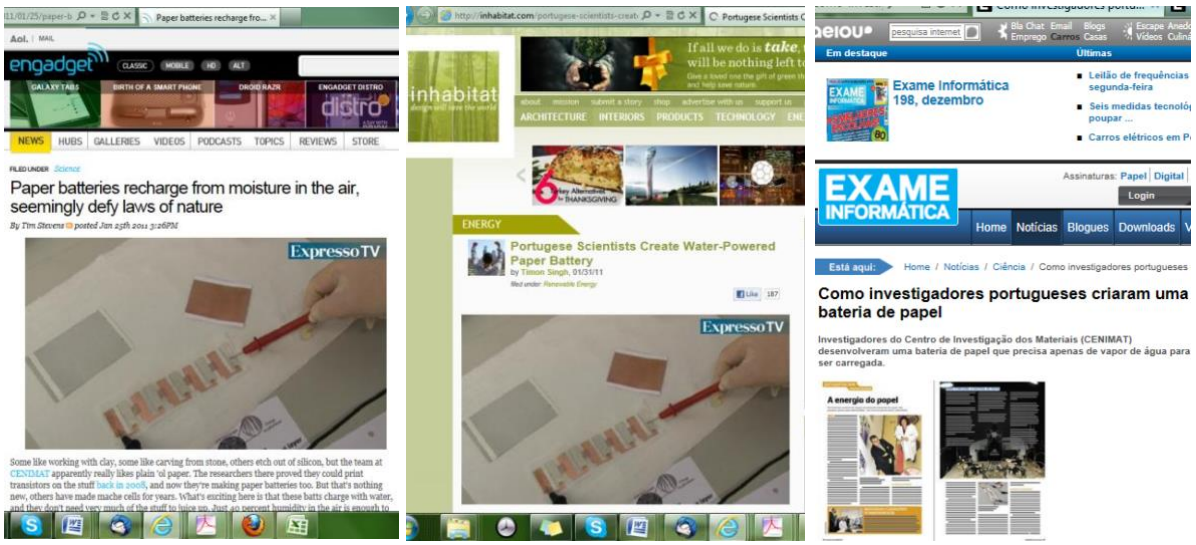
Activities that are still supported by Ciencia Viva and student sucessfull addhere every year.

DISSEMINATION TROUGH MEDIA

News about 3D printing, 2017
http://observador.pt/opiniao/nao-ha-nada-como-um-dijsselbloem-para-por-todos-de-acordo-menos-eu/
Noticia sobre ERC, 2015
https://www.publico.pt/2015/02/06/ciencia/noticia/da-luz-e-do-calor-isabel-ferreira-quer-obter-electricidade-1685335
https://www.publico.pt/2015/02/06/ciencia/noticia/sete-cientistas-portugueses-quase-14-milhoes-de-euros-de-bolsas-europeias-1685334
http://www.cidadeinformacao.pt/investigadora-da-fct-ganha-bolsa-para-converter-energia/

The work related to paper batteries have attacked considerable interest of the media as can be seen by the examples.

1. Pesquisadores portugueses criam bateria de papel, tecnologia.terra.com.br › Notícias › Tecnologia; 25 jan. 2011 – Fernando Daquino Pesquisadores da Cenimat (Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa) desenvolveram as ...- http://tecnologia.terra.com.br/noticias/0,,OI4910821- EI12882,00-Pesquisadores+portugueses+criam+bateria+de+papel.html
2. Baterias de Filme Fino de Papel - SciELO - MCTES; www.scielo.oces.mctes.pt/scielo.php?pid=S0870...script=sci..de B Brás - Artigos relacionados
3. DIA MUNDIAL DOS MATERIAIS 2009 - 2a Menção Honrosa SPM. Baterias de Filme Fino de Papel. B. Brás* , I. Ferreira. FCT-UNL.
4. Baterias em papel e a tecnologia Invisível - http://noticias.sapo.pt/info/artigo/1182325
5. A primeira bateria de papel é portuguesa - http://www.cienciahoje.pt/index.php?oid=47060&op=all
6. Água consegue carregar baterias de papel - http://www.revolucaodigital.net/2011/01/28/agua-carregar-baterias-papel/
7. Portugueses criam bateria de papel que se carrega com água Leia mais em: http://tugatech.com.pt/t3029-portugueses-criam-bateria-de-papel-que-se-carrega-com- agua#ixzz1er3xzoBV
8. Investigadores portugueses inventam baterias de papel - http://www.fibra.pt/conteudos/720- investigadores-portugueses-inventam-baterias-de-papel-.html
9. Baterias de Papel Auto-recarregáveis Portuguesas - http://abertoatedemadrugada.com/2011/01/baterias-de-papel-auto- recarregaveis.html



1. Investigadores nacionais criam baterias de papel - http://www.boasnoticias.pt/noticias_Investigadores-nacionais-criam-baterias-de-papel_5171.html
2. Baterias de Papel_ http://www.falarglobal.com/final/videos.htm?id=225&cat=ciencia&tipologia=entrevista
3. Criaram baterias de papel, que se carregam através da humidade - http://targethd.net/2011/01/26/criaram-baterias-de-papel-que-se-carregam-atraves-da-umidade/
4. Baterias de papel, made in Portugal - http://joserosafilho.wordpress.com/2011/08/07/baterias-de-papel-made-in-portugal/
5. Pesquisadores portugueses criam bateria de papel - http://tecnologia.terra.com.br/noticias/0,,OI4910821-EI12882,00-Pesquisadores+portugueses+criam+bateria+de+papel.html
6. Vantagens e aplicações das baterias de papel e das biobaterias... - http://biomedicaltopics.net/vantagens-e-aplicacoes-das-baterias-de-papel-e-das- biobaterias%E2%80%A6/
7. A energia do papel - http://aeiou.exameinformatica.pt/gen.pl?p=kwds&words=baterias%20papel
8. Portugueses desenvolvem bateria de papel recarregada por vapor - http://eco4planet.com/blog/2011/03/portugueses-desenvolvem-bateria-de-papel-recarregada-por-vapor/

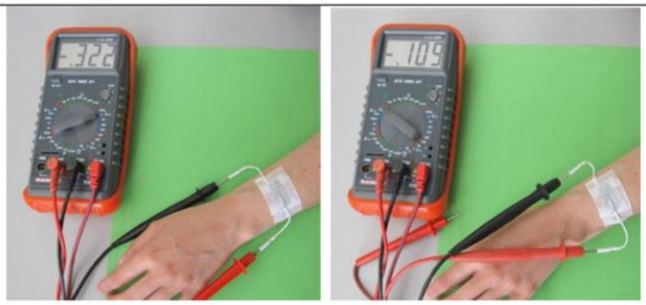
9. *Bateria de papel é recarregada com vapor d'água | BIO-IDÉIAS: O ...www.bio-ideias.com/2011/.../bateria- de-papel-e-recarregada-com.ht... 28 fev. 2011 – BIO-IDÉIAS: O melhor da Biologia: Bateria de papel é recarregada com vapor d'águaEsse blog partilha informações e conhecimento*

PROTOTYPES DEVELOPED

To help the dissemination of our scientific activity several prototypes produced in the framework of the research, as highlighted in the *Research Statement*, were used. Some examples are the following:

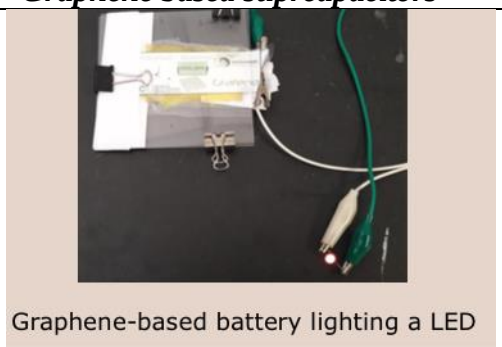
1st paper battery and bio-battery

Paper batteries to supply voltage for controlling the gate of a paper transistor. *Integrated paper battery in a sheet of paper*



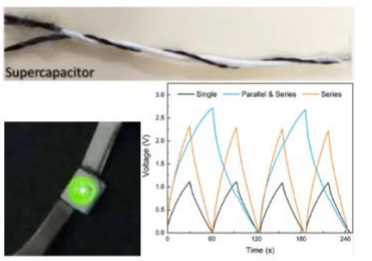
Bio-batteries made with sub-micrometer fibers of cellulose acetate. *Current and voltage measured with a multimeter of a biobattery in contact with sweaty skin*

1st Graphene based suprcapacitors



Graphene-based battery lighting a LED

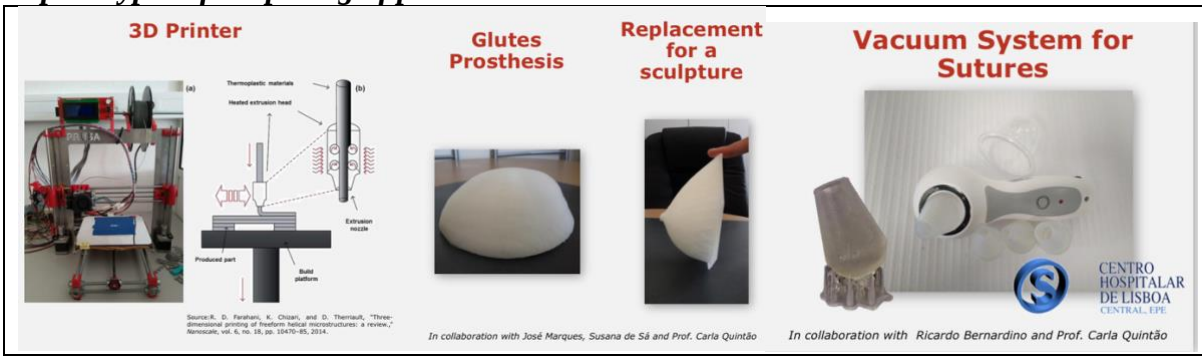
2014

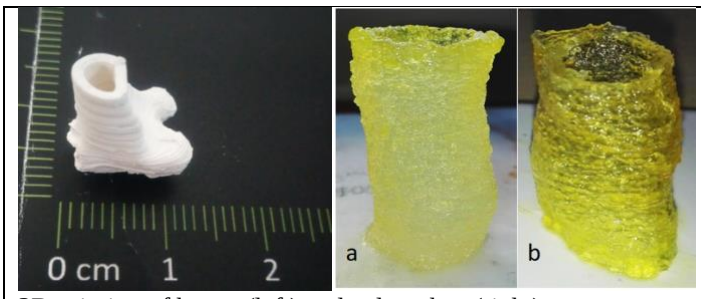


Carbon threads capacitors with cellulose acetate membranes as separator.

2019

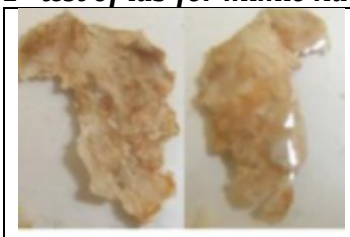
1st prototypes of 3D priting of pastes





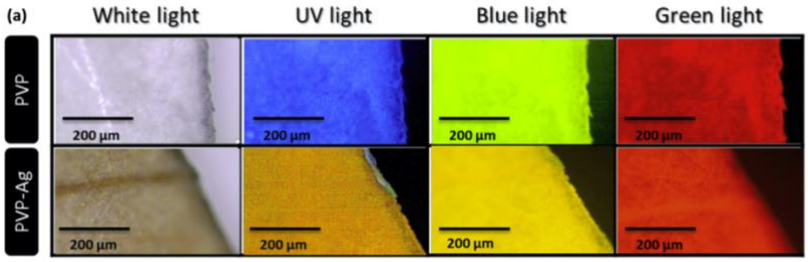
3D printing of bones (left) and gel trachea (right)

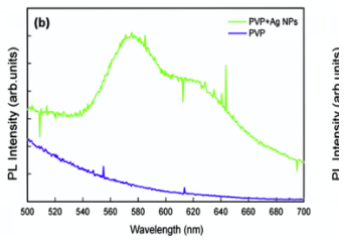
1st test of lab for mimic nacre



2015 Nacre grown from PVP fibres

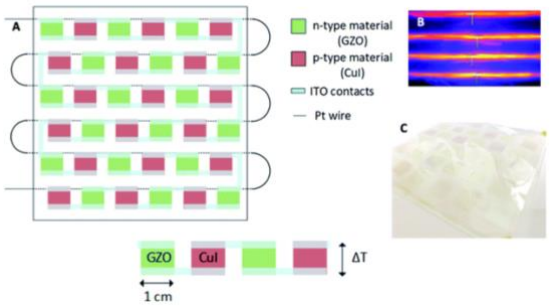
1st luminescent electrospun fibres





2015- Microscopy images of luminescent PVP membranes with UV, Blue and Green light and respective PL spectra.

1st transparent flexible thermoelectric devices



2019- p-n flexible and transparent module thermoelectric device.

RAD - ASSESSMENT

The evaluation of teachers is mandatory since 2004 a summary of grade obtained for the different career aspects: teaching, research and academic management for the last 3 periods, available at RAD platform.

PERIOD 2016-2018

Descrição	Pontuação
Avaliação do triénio:	**Excelente**
2016 Avaliação na vertente de Docência: Excelente Avaliação na vertente de Investigação: Excelente Avaliação na vertente de Gestão: Bom Avaliação na vertente de Extensão: Excelente	**Excelente**
2017 Avaliação na vertente de Docência: Excelente Avaliação na vertente de Investigação: Excelente Avaliação na vertente de Gestão: Bom Avaliação na vertente de Extensão: Excelente	**Excelente**
2018 Avaliação na vertente de Docência: Excelente Avaliação na vertente de Investigação: Excelente Avaliação na vertente de Gestão: Bom Avaliação na vertente de Extensão: Excelente	**Excelente**

PERIOD 2013-2015

Descrição	Pontuação
Avaliação do triénio:	**Excelente**
2013 Avaliação na vertente de Docência: Excelente Avaliação na vertente de Investigação: Excelente Avaliação na vertente de Gestão: Muito Bom Avaliação na vertente de Extensão: Excelente	**Excelente**
2014 Avaliação na vertente de Docência: Excelente Avaliação na vertente de Investigação: Excelente Avaliação na vertente de Gestão: Muito Bom Avaliação na vertente de Extensão: Excelente	**Excelente**
2015 Avaliação na vertente de Docência: Excelente Avaliação na vertente de Investigação: Excelente Avaliação na vertente de Gestão: Bom Avaliação na vertente de Extensão: Excelente	**Excelente**

PERIOD 2010-2012

Descrição	Pontuação
Avaliação do triénio:	**Excelente**
2010 Avaliação na vertente de Docência: Excelente Avaliação na vertente de Investigação: Excelente Avaliação na vertente de Gestão: Muito Bom Avaliação na vertente de Extensão: Excelente	**Excelente**
2011 Avaliação na vertente de Docência: Excelente Avaliação na vertente de Investigação: Excelente Avaliação na vertente de Gestão: Muito Bom Avaliação na vertente de Extensão: Excelente	**Excelente**
2012 Avaliação na vertente de Docência: Excelente Avaliação na vertente de Investigação: Excelente Avaliação na vertente de Gestão: Muito Bom Avaliação na vertente de Extensão: Excelente	**Excelente**

PERIOD 2007-2009

Descrição	Pontuação
Avaliação do triénio:	**Excelente**
2007 Avaliação na vertente de Docência: Excelente Avaliação na vertente de Investigação: Excelente Avaliação na vertente de Gestão: Bom Avaliação na vertente de Extensão: Bom	**Excelente**
2008 Avaliação na vertente de Docência: Excelente Avaliação na vertente de Investigação: Excelente Avaliação na vertente de Gestão: Muito Bom Avaliação na vertente de Extensão: Bom	**Excelente**
2009 Avaliação na vertente de Docência: Excelente Avaliação na vertente de Investigação: Excelente Avaliação na vertente de Gestão: Muito Bom Avaliação na vertente de Extensão: Bom	**Excelente**

ANNEX 1 - COMPLETE LIST OF PUBLICATIONS

Articles in journals with peer reviewing

2024

1. Henriques, João Tiago; do Carmo, Catarina Cidade; Marques, Ana; Ferreira, Isabel MM; Baptista, Ana Catarina; ***Carbon Threads Supercapacitors for Washable e-Textile Applications: Configurations and Electrochemical Performance,*** ACS Applied Engineering Materials, 2, 2,415-421, 2024. IF=10.4, TC=0
2. Pęczkowski, Paweł; Zhang, Zhichao; Zalecki, Ryszard; Jastrzębski, Cezariusz; Piętosa, Jarosław; Zachariasz, Piotr; Brito, Miguel; Więckowski, Jarosław; Michalik, Jan Marek; Ferreira, Isabel Maria Merces; ***Structural, magnetic, and thermal properties of 3D-printed porous Y− Ba− Cu− O superconductors***, Journal of the European Ceramic Society, 44, 11, 6477-6487, 2024. https://doi.org/10.1016/j.jeurceramsoc.2024.04.009. IF=5.8; TC=0
3. Cidade do Carmo, Catarina; Brito, Miguel; Oliveira, JP; Marques, Ana; Ferreira, Isabel; Baptista, Ana Catarina; ***Cellulose Acetate and Polycaprolactone Fibre Coatings on Medical-Grade Metal Substrates for Controlled Drug Release,*** Polymers,16, 14, 2006, 2024, https://doi.org/10.3390/polym16142006; IF=4.7; TC=0
4. Rafique, Amjid; Ferreira, Isabel; Bundaleski, Nenad; Teodoro, OMND; Baptista, Ana C; ***Enhancing charge storage capacity of cellulose-sweat-based electrolyte flexible supercapacitors with electrochemically exfoliated free-standing carbon yarn electrodes***, FlatChem, 100724, 202, https://doi.org/10.1016/j.flatc.2024.100724; IF=5.9; TC=0

2023

1. Bundaleski, Nenad; Adame, Carolina F; Alves, Eduardo; Barradas, Nuno P; Cerqueira, Maria F; Deuermeier, Jonas; Delaup, Yorick; Ferraria, Ana M; Ferreira, Isabel MM; Neupert, Holger; ***The Role of Hydrogen Incorporation into Amorphous Carbon Films in the Change of the Secondary Electron Yield***, International Journal of Molecular Sciences,2 4, 16, 12999, 2023, https://doi.org/10.3390/ijms241612999, IF= 4.9; TC=0
2. Wang, Junru; Ferreira, Isabel Maria Mercês; Vandeginste, Veerle; ***Modified MnO2-Based Cathode for Zinc-Ion Batteries Using Facile Processing and Easily Available Materials***, Electrochemical Society Meeting Abstracts, 242, 4, 543-543, 2023, DOI 10.1149/MA2023-024543mtgabs.
3. Wang, Junru; Szabo, Laszlo; Madhav, Dharmjeet; Ferreira, Isabel; Vandeginste, Veerle; ***Recent progress in interfacial engineering strategies for Mn-based oxide cathodes in aqueous zinc-ion batteries: mechanisms, modifications, and performance enhancement,*** Energy Storage Materials, 103015, 2023, https://doi.org/10.1016/j.ensm.2023.103015 , IF 18.9, TC=7.
4. A Rafique, I Ferreira, G Abbas, AC Baptista; ***Recent Advances and Challenges Toward Application of Fibers and Textiles in Integrated Photovoltaic Energy Storage Devices***; Nano-Micro Letters 15 (1), 40 2. https://doi.org/10.1007/s40820-022-01008-y; IF=23.655, TC=7
5. Amjid Rafique, Inês Sequeira, Ana Sofia Bento, Mariana Peyro Moniz, João Carmo, Eduardo Oliveira, João Pedro Oliveira, Ana Marques, Isabel Ferreira, Ana Catarina Baptista; ***A facile blow spinning technique for green cellulose acetate/polystyrene composite separator for flexible energy storage devices***; Chemical Engineering Journal 464, 142515. https://doi.org/10.1016/j.cej.2023.142515 IF=16.74, TC=1,
6. Bianchi, C., Marques, A. and Ferreira, I. (2023), ***Photothermoelectric AZO/SiO_2/NiO Device***. Adv. Mater. Technol. 2300133. https://doi.org/10.1002/admt.202300133. IF= 8.856; TC=

7. Beatriz Lago, Miguel Brito, Cristina M.M. Almeida, Isabel Ferreira, Ana Catarina Baptista; ***Functionalization of cellulose acetate membranes with PEDOT and PPy for electronic controlled drug release***; NANOMATERIALS **2023**, 13(9), 1493; **https://doi.org/10.3390/nano13091493**. IF=5.719; TC=
8. Moniz, Mariana; Rafique, Amjid; Carmo, Joao ; Oliveira, João ; Marques, Ana; das Mercês Ferreira, Isabel; Baptista, Ana; ***Electrospray deposition of PEDOT:PSS on carbon yarn electrodes for solid-state flexible supercapacitors***; ACS Appl. Mater. Interfaces 2023, 15, 30727−30741. https://doi.org/10.1021/acsami.3c03903. IF=10.383.
9. CF Adame, E Alves, NP Barradas, P Costa Pinto, Y Delaup, IMM Ferreira, H Neupert, M Himmerlich, S Pfeiffer, M Rimoldi, M Taborelli, OMND Teodoro, N Bundaleski. ***Amorphous carbon thin films: Mechanisms of hydrogen incorporation during magnetron sputtering and consequences for the secondary electron emission***, Journal of Vacuum Science & Technology A 41 (4). https://doi.org/10.1116/6.0002759. IF=2.9.

2022

1. Jaime Faria; Bruno Dionísio; Íris Soares; Ana Catarina Baptista; Ana Marques; Lídia Gonçalves; Ana Bettencour; Carlos Baleizão; Isabel Ferreira; ***Cellulose acetate fibres loaded with daptomycin for metal implant coatings***; Carbohydrate Polymers 276, 118733. IF=9.831, TC=7
2. Íris Soares; Jaime Faria; Ana Marques; Isabel AC Ribeiro; Carlos Baleizão; Ana Bettencourt; Isabel MM Ferreira; Ana Catarina Baptista; ***Drug Delivery from PCL/Chitosan Multilayer Coatings for Metallic Implants***, ACS ômega, 7, 27, 23096-23106, IF=3.512; TC=0.
3. Ana Margarida Gonçalves Carvalho Dias; Cícero Cena; Viviane Lutz-Bueno; Raffaele Mezzenga; Ana Marques; Isabel Ferreira; Ana Cecília Afonso Roque; ***Solvent modulation in peptide sub-microfibers obtained by solution blow spinning***, Frontiers in Chemistry, 10. IF=5.211; TC=1.

2021

1. Ana Catarina Baptista, Miguel Brito, Ana Marques and Isabel Ferreira***, Electronic control of drug release from gauze or cellulose acetate fibres for dermal applications,*** J. Mater. Chem. B,9, 3515-3522, IF=6.331, TC=9
2. Diogo Mendes, David Sousa, Ana C Cerdeira, Laura CJ Pereira, Ana Marques, João Murta-Pina, Anabela Pronto, Isabel Ferreira, ***Low-cost and high-performance 3D printed YBCO superconductors,*** Ceramics International 47 381–387382, IF=4.527 TC=13.
3. David M Sousa; João Carlos Lima; Isabel Ferreira; ***Image Recording and Processing Chemical Synthesis: Method Description and Demonstration***, Chemistry-Methods,1, 3, 157-161. IF=3.14; TC=1
4. Catarina Bianchi; AC Marques; RC da Silva; Tomas Calmeiro; Isabel Ferreira; **Near infrared photo-thermo-electric effect in transparent AZO/ITO/Ag/ITO thin films**; Scientific reports, 11, 1. IF=4.379; TC=7
5. DNDL Mendes, A Gaspar, I Ferreira, JPB Mota, RPPL Ribeiro; ***3D-printed hybrid zeolitic/carbonaceous electrically conductive adsorbent structures***; Chemical Engineering Research and Design 174, 442-453. IF=3.739, TC=10.

2020

1. D Magalhães Sousa, W Chiappim, J P. Leitão, JC Lima, I Ferreira, ***Microwave synthesis of silver sulfide and silver nanoparticles: light and time influence***, ACS omega (2020) 5 (22), 12877-12881. IF=3.512, TC=9.

2. N Lima, AC Baptista, BMM Faustino, S Taborda, A Marques, I Ferreira, ***Carbon threads sweat-based supercapacitors for electronic textiles***, Scientific reports (2020) 10 (1), 1-9. IF=4.379, TC=31.
3. P Perdigão, BM Morais Faustino, J Faria, JP Canejo, JP Borges, I Ferreira, A Baptista, ***Conductive electrospun polyaniline/polyvinylpyrrolidone nanofibers: Electrical and morphological characterization of new yarns for electronic textiles***. Fibers (2020) 8 (4), 24. IF=3.2, TC=11
4. B Matos, M Martins, AC Samamed, D Sousa, I Ferreira, MS Diniz, ***Toxicity evaluation of quantum dots (ZnS and CdS) singly and combined in zebrafish (Danio rerio),*** International journal of environmental research and public health (2020) 17 (1), 232. IF=3.390, TC=26

2019

1. Diogo Miguel Esperança Garcia, Ana Sofia Taborda Martins Pereira,Antońio Carranca Almeida, Urbez Santana Roma, Alejandra Ben Aissa Soler, Paul D. Lacharmoise, Isabel Maria das Merceŝ Ferreira, and Claúdia Custoḍio Delgado Simão, ***Large-Area Paper Batteries with Ag and Zn/Ag Screen-Printed Electrodes***, ACS Omega 2019, 4, 16781−16788, IF=3.512, TC=14
2. AC Marques, Davide Miglietta, G Gaspar, AC Baptista, A Gaspar, P Perdigão, I Soares, C Bianchi, D Sousa, BM Morais Faustino, VS Amaral, T Santos, AP Gonçalves, RC da Silva, Fabrizio Giorgis, I Ferreira, ***Synthesis of thermoelectric magnesium-silicide pastes for 3D printing, electrospinning and low-pressure spray***, Materials for Renewable and Sustainable Energy (2019) 8 (4), 21, IF=2.55, TC=11
3. Ana Filipa Cristovão, David Sousa, Filipe Silvestre, Inês Ropio, Ana Gaspar, Célia Henriques, Alexandre Velhinho, Ana Catarina Baptista, Miguel Faustino, Isabel Ferreira, ***Customized tracheal design using 3D printing of a polymer hydrogel: influence of UV laser cross-linking on mechanical properties***, 3D printing in medicine (2019) 5 (1), 12, IF=na, TC=11
4. J Coroa, BM Morais Faustino, A Marques, C Bianchi, T Koskinen, T Juntunen, I Tittonen, I Ferreira, ***Highly transparent copper iodide thin film thermoelectric generator on a flexible substrate***, RSC Advances (2019) 9 (61), 35384-35391., IF=3.119; TC=39
5. Alexandre Rocha, David Sousa, Isabel Ferreira, Mário Sousa Diniz, Biochemical responses in Danio rerio following exposure to CdS and ZnS Quantum Dots, Annals of Medicine (2019) 51 (sup1), 71-71.
6. F Ferreira, I Ferreira, E Camacho, F Lopes, AC Marques, A Velhinho, ***Graphene oxide-reinforced aluminium-matrix nanostructured composites fabricated by accumulative roll bonding***, Composites Part B: Engineering (2019),164, pages 265-271, IF=9.078, TC=28.
7. AC Marques, J Faria, P Perdigão, BMM Faustino, R Ritasalo, ..., ***Stability under humidity, UV-light and bending of AZO films deposited by ALD on Kapton***, Scientific reports 9 (1), 1-9. IF=4.996, TC=13
8. Carina Esteves; Gonçalo MC Santos; Cláudia Alves; Susana ICJ Palma; Ana R Porteira; Henrique MA Costa; Vitor D Alves; Bruno M Morais Faustino; Isabel Ferreira; Hugo Gamboa. Effect of film thickness in gelatin hybrid gels for artificial olfaction, Materials Today Bio,1, 2019, pages 100002, IF=7.347, TC=13.

2018

1. AC Baptista, I Ropio, B Romba, JP Nobre, C Henriques, JC Silva, JI Martins, JP Borges, I Ferreira. ***Cellulose-based electrospun fibers functionalized with polypyrrole and polyaniline for fully organic batteries***, Journal of Materials Chemistry A, 6,1, 2018, pages 256-265., IF=11.3, TC=54
2. Bruno Miguel Morais Faustino, Diogo Gomes, Jaime Faria, Taneli Juntunen, Guilherme Gaspar, Catarina Bianchi, António Almeida, Ana Marques, Ilkka Tittonen, Isabel Ferreira, ***CuI p-type thin films for highly transparent thermoelectric pn modules***, Scientific reports,8,1,2018, pages 6867. IF=4.379, TC=73
3. I Ropio, AC Baptista, JP Nobre, J Correia, F Belo, S Taborda, BM Morais Faustino, JP Borges, A Kovalenko, I Ferreira, ***Cellulose paper functionalised with polypyrrole and poly (3, 4-ethylenedioxythiophene) for paper battery electrodes***, Organic Electronics, 62, 2018, pages 530-535. IF=3.310, TC=16.

4. David Magalhães Sousa, Luís Cerqueira Alves, Ana Marques, Guilherme Gaspar, João Carlos Lima & Isabel Ferreira; ***Facile Microwave-assisted Synthesis Manganese Doped Zinc Sulfide Nanoparticles***, Scientific Reports, 8, 2018, Article number: 15992. IF=4.379, TC=19

2017

1. Paulina Faria, Paulo Duarte, Davide Barbosa, Isabel Ferreira; **New composite of natural hydraulic lime mortar with graphene oxide**; Construction and Building Materials, 156, 2017, pages 1150-1157. IF=4.419; TC=48
2. Joana Loureiro, Tiago Mateus, Sergej Filonovich, Marisa Ferreira, Joana Figueira, Alexandra Rodrigues, Brian F Donovan, Patrick E Hopkins, Isabel Ferreira, ***Improved thermoelectric properties of nanocrystalline hydrogenated silicon thin films by post-deposition thermal annealing***, Thin Solid Films,642, 2017, pages 276-280,2017. IF=1,939, TC=17
3. A Delgado-Lima, João P Borges, Isabel M Ferreira, Ana V Machado; ***Fluorescent and conductive cellulose acetate-based membranes with porphyrins***; Materials Today Communications, Volume 11, June 2017, Pages 26-37; IF=2.678; TC=5.
4. Joana Figueira, Joana Loureiro, José Marques, Catarina Bianchi, Paulo Duarte, Mikko Ruoho, Ilkka Tittonen, Isabel Ferreira, ***Optimization of Cuprous Oxides Thin Films to be used as Thermoelectric Touch Detectors***, ACS applied materials & interfaces (2017) 9 (7), 6520-6529. IF=8.758; TC=25.
5. David M Sousa, João Carlos Lima, Isabel Ferreira; ***Synthesis of Cadmium Selenide Quantum Dots, Using 2, 2-Bipyridine as a Capping and Phase Transfer Agent***; ChemistrySelect (2017) 2 (3), 1271-1274: IF=1.85; TC=2

2016

1. Bianchi, C; Ferreira, LM; Loureiro, J; Rodrigues, A; Duarte, P; Baptista, AC; Ferreira, IM; ***Vanadium Pentoxide Alloyed with Graphite for Thin-Film Thermal Sensors,*** Journal of Electronic Materials, 45, 3, 1987-1991, 2016: IF=1.774; TC=3.
2. Soares, Paula IP; Sousa, Ana Isabel; Silva, Jorge Carvalho; Ferreira, Isabel MM; Novo, Carlos MM; Borges, João Paulo; ***Chitosan-based nanoparticles as drug delivery systems for doxorubicin: Optimization and modelling,*** Carbohydrate polymers, 147,304-312, 2016: IF=5.158; TC=166.
3. Soares, Paula IP; Machado, Diana; Laia, César; Pereira, Laura CJ; Coutinho, Joana T; Ferreira, Isabel MM; Novo, Carlos MM; Borges, João Paulo; ***Thermal and magnetic properties of chitosan-iron oxide nanoparticles,*** Carbohydrate polymers,149, 382-390, 2016: IF=7.181; TC=77
4. Soares, Paula IP; Laia, César AT; Carvalho, Alexandra; Pereira, Laura CJ; Coutinho, Joana T; Ferreira, Isabel MM; Novo, Carlos MM; Borges, João Paulo; ***Iron oxide nanoparticles stabilized with a bilayer of oleic acid for magnetic hyperthermia and MRI applications***, Applied Surface Science, 383, 240-247, 2016: IF=6.182; TC=131
5. Mendes, Manuel J; Araújo, Andreia; Vicente, António; Águas, Hugo; **Ferreira, Isabel**; Fortunato, Elvira; Martins, Rodrigo; ***Design of optimized wave-optical spheroidal nanostructures for photonic-enhanced solar cells***, Nano Energy, 26, 286-296, 2016: IF=16.602; TC=71.
6. Bianchi, Catarina; Loureiro, Joana; Duarte, Paulo; Marques, Jose; Figueira, Joana; Ropio, Ines; Ferreira, Isabel; ***V_2O_5 Thin Films for Flexible and High Sensitivity Transparent Temperature Sensor***, Advanced Materials Technologies, 2016: IF=7.848; TC=18.
7. Soares, Paula IP; Sousa, Ana Isabel; Ferreira, Isabel MM; Novo, Carlos MM; Borges, João Paulo; **Towards the development of multifunctional chitosan-based iron oxide nanoparticles:**

Optimization and modelling of doxorubicin release, Carbohydrate Polymers, 153, 212-221, 2016: IF=7.182; TC=34

8. CFC João, AC Baptista, IMM Ferreira, JC Silva, JP Borges, **Natural nanofibres for composite applications,** Fibrous and Textile Materials for Composite Applications, 261-299. TC=5

2015

1. Baptista, Ana C; Botas, Alexandre M; Almeida, Ana PC; Nicolau, Ana T; Falcão, Bruno P; Soares, Manuel J; Leitão, Joaquim P; Martins, Rodrigo; Borges, João P; Ferreira, Isabel; ***Down conversion photoluminescence on PVP/Ag-nanoparticles electrospun composite fibers***, Optical Materials, 39,278-281, 2015: IF=3.06; TC=15
2. Ana Picado, Susana M Paixão, Liliana Moita, Luis Silva, Mário S Diniz, Joana Lourenço, Isabel Peres, Luisa Castro, José Brito Correia, Joana Pereira, **Isabel Ferreira**, António Pedro Alves Matos, Pedro Barquinha, Elsa Mendonca; ***A multi-integrated approach on toxicity effects of engineered TiO_2 nanoparticles***, Frontiers of Environmental Science & Engineering, 9, 5, 793-803,2015: IF=4.155; TC=20
3. Mendes, Manuel J; Morawiec, Seweryn; Mateus, Tiago; Lyubchyk, Andriy; Águas, Hugo; Ferreira, Isabel; Fortunato, Elvira; Martins, Rodrigo; Priolo, Francesco; Crupi, Isodiana; **Broadband light trapping in thin film solar cells with self-organized plasmonic nano-colloids,** Nanotechnology, 26, 13, 135202, 2015: IF=3.446; TC=58
4. Ferreira, M; Loureiro, J; Nogueira, A; Rodrigues, A; Martins, R; **Ferreira, I**; ***SnO_2 thin Film Oxides Produced by rf Sputtering for Transparent Thermoelectric Devices***, Materials Today: Proceedings, 2, 2, 647-653, 2015: IF=1.241; TC=27
5. Loureiro, Joana; Mateus, Tiago; Filonovich, Sergej; Ferreira, Marisa; Figueira, Joana; Rodrigues, Alexandra; Donovan, Brian F; Hopkins, Patrick E; Ferreira, Isabel; ***Hydrogenated nanocrystalline silicon thin films with promising thermoelectric properties***, Applied Physics A, 120, 4, 1497-1502, 2015: IF=2.584; TC=14
6. Echeverria, Coro; Soares, Paula; Robalo, Ana; Pereira, Laura; Novo, Carlos MM; Ferreira, Isabel; Borges, João Paulo; **One-pot synthesis of dual-stimuli responsive hybrid PNIPAAm-chitosan microgels**, Materials & Design, 86, 745-751, 2015: IF=7.991; TC=42
7. Muelle, H; Barquinha, P; Ferreira, I; Fortunato, E; Santos, M Conceição; Diniz, MS; **Effects of ultra-sonication on the cyanobacteria Microcystis aeruginosa structure and growth**, Microscopy and Microanalysis, 21, S6, 50-51, 2015: IF=3.414; TC=2
8. Soares, Paula IP; Lochte, Frederik; Echeverria, Coro; Pereira, Laura CJ; Coutinho, Joana T; Ferreira, Isabel MM; Novo, Carlos MM; ***Thermal and magnetic properties of iron oxide colloids: influence of surfactants***, Nanotechnology, 26, 42, 425704, 2015: IF=3.446; TC=71
9. Contreras, Javier; Tornero, Josep; **Ferreira, Isabel**; Martins, Rodrigo; Gomes, Luis; Fortunato, Elvira; ***Simulated and Real Sheet-of-Light 3D Object Scanning Using a-Si: H Thin Film PSD Arrays***, Sensors, 15, 12, 29938-29949, 2015: IF=3.275; TC=2

2014

1. Contreras, J; Rodrigo M.; Pawel W; Filonovich, S.; Aguas, H.; Gomes, L.; Fortunato, E.; Ferreira, I.; ***Color sensing ability of an amorphous silicon position sensitive detector array system***, Sensors and Actuators A: Physical, 205 (2014), 26-37: IF=3.275; TC=4
2. Soares, P. IP; Alves, A. MR; Pereira, L.CJ; Coutinho, J. T; **Ferreira, I. MM**; Novo, C.MM; Borges, J. PMR; ***Effects of surfactants on the magnetic properties of iron oxide colloids,*** Journal of Colloid and Interface Science 419 (2014) 46-51: IF=8.128; TC=123

3. Gaspar, D., Pimentel, AC., Mendes, MJ., Mateus, T., Falcão BP, Leitão JP, Soares J, Araújo A, Vicente A, Filonovich SA, Águas H, Martins R, Ferreira I: ***Ag and Sn Nanoparticles to Enhance the Near-Infrared Absorbance of a-Si:H Thin Films***, Plasmonics, online (2014) 1-9: DOI 10.1007/s11468-014-9709-0: IF=2.335; TC=23
4. Loureiro, J; Neves, N; Barros, R.; Mateus, T.; Santos, R.; Filonovich, S.; Reparaz, S.; Sotomayor-Torres, C M; Wyczisk, F.; Divay, L.; Martins R. and **Ferreira I.** ***Transparent aluminium zinc oxide thin films with enhanced thermoelectric properties***, Journal of Materials Chemistry A (2014) 2, 18, 6649-6655: IF=11.301; TC=119
5. Loureiro, J.; Santos, J.; Nogueira, A.; Wyczisk, F.; Divay, L.; Reparaz, S.; Alzina, F.; Torres, C. M Sotomayor; Cuffe, J.; Montemor, F.; Martins R. and **Ferreira I,** ***Nanostructured p-type Cr/V2O5 thin films with boosted thermoelectric properties***, Journal of Materials Chemistry A (2014) 2, 18, 6456-6462: IF=11.301; TC=24
6. Nuno Neves, Ana Lagoa,.., Isabel Ferreira, ***Al-doped ZnO nanostructured powders by emulsion detonation synthesis–Improving materials for high quality sputtering targets manufacturing***, J. of the European Ceramic Society (2014) 34, 10, 2325-2338: IF=5.302; TC=24
7. Seweryn Morawiec, Manuel J Mendes, Sergej A Filonovich, Tiago Mateus, Salvatore Mirabella, Hugo Águas, **Isabel Ferreira**, Francesca Simone, Elvira Fortunato, Rodrigo Martins, Francesco Priolo, Isodiana Crupi, **Broadband photocurrent enhancement in a-Si: H solar cells with plasmonic back reflectors**, Optics Express, 22, 104 (2014) A1059-A1070: IF=3.894; TC=72
8. Paula IP Soares, Isabel MM Ferreira, JPMR Borges, **Application of hyperthermia for cancer treatment: recent patents review**, Topics in anti-cancer research, 3, 342-383, 2014. Bentham Science Publishers USA. IF=1.994; TC=4

2013

1. **Ferreira, Isabel**; Baptista, Ana Catarina; Leitão, Joaquim Pratas; Soares, Jorge; Fortunato, Elvira; Martins, Rodrigo; Borges, João Paulo; ***Strongly Photosensitive and Fluorescent F8T2 Electrospun Fibers***, Macromolecular Materials and Engineering,298,2,174-180,2013: IF= 4.367; TC=6
2. Martins, Rodrigo FP; Ahnood, Arman; Correia, Nuno; Pereira, Luís MNP; Barros, Raquel; Barquinha, Pedro MCB; Costa, Ricardo; **Ferreira, Isabel MM**; Nathan, Arokia; Fortunato, Elvira EMC,"**Recyclable, Flexible, Low-Power Oxide Electronics**", Advanced Functional Materials, 23, 17, 2153-2161, 2013: IF=18.809; TC=144
3. DPAC Gaspar, AC Pimentel, T Mateus, JP Leitao, J Soares, BP Falcao, A Araújo, A Vicente, SA Filonovich, H Aguas, R Martins, **I Ferreira**; **Influence of the layer thickness in plasmonic gold nanoparticles produced by thermal evaporation**, Scientific reports, 3, 2013: IF=4.379; TC=114
4. Santos, R; Loureiro, J; Nogueira, A; Elangovan, E; Pinto, JV; Veiga, JP; Busani, T; Fortunato, E; Martins, R; Ferreira, I; ***Thermoelectric properties of V_2O_5 thin films deposited by thermal evaporation***, Applied Surface Science, 282, 590-594, 2013: IF=6.182 ; TC=97
5. Chumakov, Yu; Xiong, S-Y; Santos, JR; **Ferreira, I**; Termentzidis, K; Pokropivny, A; Cortona, P; Volz, S; **Ab Initio Calculations and Measurements of Thermoelectric Properties of V2O5 Films**, Journal of electronic materials, 42, 7, 1597-1603,2013: IF=1.938; TC=13

2012

1. R. Martins, R. Barros, V. Figueiredo, P. Barquinha, G. Gonçalves, L. Pereira, **I. Ferreira**, and E. Fortunato, **P-type oxide-based thin film transistors produced at low temperatures**, Proc. SPIE 8263, 826315 (2012). TC=13.

2. Soares Paula I. P., **Ferreira Isabel M. M**.,*, Igreja Rui A. G. B. N., Novo Carlos M. M. and Borges João P. M. R., Application of Hyperthermia for Cancer Treatment: Recent Patents Review Recent Patents on Anti-Cancer Drug Discovery, 7, (2012) 64-73: IF=1.3; TC=101
3. Contreras J., Idzikowski M., Pereira S., Filonovich S. A., Fortunato E., Martins R., **Ferreira I., Amorphous silicon position sensitive detector array system for fast 3D object profiling**, OPTICS EXPRESS, Vol. 20, No. 4, (2012) 4583: IF=3.894; TC=6
4. Yu Chumakov, JR Santos, **I Ferreira**, K Termentzidis, A Pokropivny, SY Xiong, P Cortona, S Volz. **Thermoelectric transport in V2O5 thin films**, Journal of Physics: Conference Series, 395,1,012016. IOP Publishing 2012/11/26: IF=0.55; TC=6
5. Soares, PIP; Dias, SJR; Novo, CMM; **Ferreira, IMM**; Borges, JP, **Doxorubicin vs. ladirubicin: methods for improving osteosarcoma treatment,** MINI-REVIEWS IN MEDICINAL CHEMISTRY Volume: 12 Issue: 12 Pages: 1239-1249 Published: OCT 2012: IF=3.862; TC=12.
6. Nuno Neves, Raquel Barros, Elsa Antunes, João Calado, Elvira Fortunato, Rodrigo Martins, Isabel Ferreira, **Aluminum doped zinc oxide sputtering targets obtained from nanostructured powders: processing and application.** Journal of the European Ceramic Society, 32(16) (2012) 4381-4391. IF=4.495; TC=68

2011

1. Javier Contreras, Marek Idzikowski, Sónia Pereira, Sergej A. Filonovich, Elvira Fortunato, Rodrigo Martins, and Isabel Ferreira, ***Amorphous Silicon Position Sensitive Detector Array for Fast 3-D Object Profiling***, IEEE SENSORS JOURNAL, VOL. 12, NO. 4, APRIL 2011: IF=3.076; TC=10
2. Rodrigo Martins, Arokia Nathan, Raquel Barros, Luís Pereira, Pedro Barquinha, Nuno Correia, Ricardo Costa, Arman Ahnood, Isabel Ferreira, Elvira Fortunato, **Complementary Metal Oxide Semiconductor Technology With and On Paper**, Advanced Materials, 4, 3852-3873: IF=30.849; TC=274
3. Martins, R; Bras, B; Ferreira, I; Pereira, L; Barquinha, P; Correia, N ; Costa, R ; Busani, T; Goncalves, A; Pimentel, A; Fortunato, E, **Away from silicon era: the paper electronics**, OXIDE-BASED MATERIALS AND DEVICES II Book Series: Proceedings of SPIE, 7940, Article Number: 79400P: IF=0.37; TC=8
4. Nuno M. Neves, Raquel X. Barros, Elsa M. Antunes, **Isabel M. Ferreira**, João M. Calado, Elvira M. Fortunato and Rodrigo F. Martins, **Sintering Behavior of Nano- and Micro-Sized ZnO Powder Targets for rf Magnetron Sputtering Applications**", Journal of the American Ceramic Society, 95 (1), 204-211: IF=3.094; TC=33
5. Ferreira I, Brás B, Martins JI, Correia N, Barquinha P, Fortunato E, and Martins R, **Solid-state paper batteries for controlling paper transistors**, Electrochimica Acta 56 (2011) 1099–1105: IF=6.216; TC=46
6. Baptista AC, Martins JI, Fortunato E, Martins R, Borges JP and **Ferreira I**, Thin and flexible bio-batteries made of electrospun cellulose-based membranes, Biosensors and Bioelectronics 26 (2011) 2742–2745: IF=10.257; TC=54
7. Aguas H.; Ram, SK; Araujo, A; Gaspar, D; Vicente, A; Filonovich, SA; Fortunato, E; Martins, R; Ferreira, I. Silicon thin film solar cells on commercial tiles, Energy& Environmental Science (4) 11 (2011) 4620-4632 . IF=30.289, TC=88

2010

1. **Ferreira I**, Brás B, Correia N, Barquinha P, Fortunato E, and Martins R, **Self-Rechargeable Paper Thin-Film Batteries: Performances and Applications**, JOURNAL OF DISPLAY TECHNOLOGY, 1551-319X© 2010 IEEE, 10.1109/JDT.2010.2056672, IF=1.928: IF=1.925; TC=61

2. Javier Contreras, Daniel Costa, Sonia Pereira, Elvira Fortunato, Rodrigo Martins, Rafal Wierzbicki, Holger Heerlein and Isabel Ferreira, ***Micro Cantilever Movement Detection with an Amorphous Silicon Array of Position Sensitive Detectors***, Sensors 2010, 10, 1-x manuscripts; doi:10.3390/s100x0000x: IF=3.275; TC=10
3. Martins, R; Pereira, L; Barquinha, P; Correia, N; Gonçalves, G; Ferreira, I; Dias, C; Fortunato, E; Floating gate memory paper transistor, Oxide-based Materials and Devices,7603,760314, 2010. IF=NA, TC=2
4. Aguas, H; Filonovich, SA; Bernacka-Wojcik, I; Fortunato, E; Martins, R; ,Role of trimethylboron to silane ratio on the properties of p-type nanocrystalline silicon thin film deposited by radio frequency plasma enhanced chemical vapour deposition, Journal of nanoscience and nanotechnology,10,4, 2010, pages 2547-2551. IF=NA, TC=3

2009

1. Fortunato E, Goncalves A, Pimentel A, Barquinha P, Goncalves G, Pereira L, **Ferreira I**, Martins R, **Zinc oxide, a multifunctional material: from material to device applications**, APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING 96 (1) (2009) 197-205; IF= 2.584, TC=182
2. Martins, R; Barquinha, P; Pereira, L, Correia, N., Goncalves, G., **Ferreira, I**., Fortunato, E. , **Selective floating gate non-volatile paper memory transistor** PHYSICA STATUS SOLIDI-RAPID RESEARCH LETTERS, 3 (9) (2009) 308-310; IF=2.821, TC=54
3. Martins, R; Raniero, L; Pereira, L, Costa, D., Aguas, H., Pereira, S., Silva, L., Goncalves, A., **Ferreira, I.,** Fortunato, E., **Nanostructured silicon and its application to solar cells, position sensors and thin film transistors,** PHILOSOPHICAL MAGAZINE (89) 28-30 (2009) 2699-2721; IF= 1.778, TC=58
4. Lopes, M. E., Gomes, H. L., Medeiros, M. C. R., Barquinha, P., Pereira, L., Fortunato, E., Martins, R., **Ferreira,I., Gate-bias stress in amorphous oxide semiconductors thin-film transistors**, APPLIED PHYSICS LETTERS, 95(6) Article Number: 063502, 2009; IF=3.597; TC=256.
5. Fortunato, E., Pereira, L., Barquinha, P., **Ferreira, I.,** Prabakaran, R., Goncalves, G., Goncalves, A., Martins,R., **Oxide semiconductors: Order within the disorder**, PHILOSOPHICAL MAGAZINE (89) 28-30 (2009) 2741-2758; IF=1.778; TC=30.

2008

1. Prabakaran R, Aguas H, Fortunato E, Martins R, **Ferreira I**., **n-PS/a-Si : H heterojunction for device application,** Journal of Non-Crystalline Solids 354 (19-25) (2008) 2632-2636: IF=1.787; TC=8
2. Prabakaran R, Fortunato E, Martins R, **Ferreira I**, **Fabrication and characterization of hybrid solar cells based on copper phthalocyanine/porous silicon**, Journal of Non-Crystalline Solids 354 (19-25) (2008) 2892-2896: IF=1.787; TC=31
3. Prabakaran R, Peres M, Monteiro T, Fortunato E, Martins R, **Ferreira I**, **The effects of ZnO coating on the photoluminescence properties of porous silicon for the advanced optoelectronic devices**, Journal of Non-Crystalline Solids 354 (19-25) (2008) 2181-2185: IF=1.787; TC=28
4. Prabakaran R., Silva L., Fortunato E, Martins R, **Ferreira** I, **Investigation of hydrocarbon coated porous silicon using PECVD technique to detect CO_2 gas**, Journal of Non-Crystalline Solids 354 (19-25) (2008) 2610-2614: IF=1.787; TC=4
5. Fortunato E, Raniero L, Silva L, Goncalves A, Pimentel A, Barquinha P, Aguas H, Pereira L, Goncalves G, **Ferreira I**, Elangovan E, Martins R "**Highly stable transparent and conducting gallium-doped zinc oxide thin films for photovoltaic applications**" SOLAR ENERGY MATERIALS AND SOLAR CELLS 92 (12) (2008) 1605-1610: IF=5.016; TC=208

6. Martins R, Barquinha P, Pereira L, Correia N, Goncalves G, **Ferreira I**, Fortunato E, **Write-erase and read paper memory transistor**, APPLIED PHYSICS LETTERS 93 (20) Article Number: 203501 2008: IF=3.293; TC=152

2007

1. Raniero, L.; **Ferreira, I**.; Fortunato, E.; Martins, R.; Differences between amorphous and nanostructured silicon films and their application in solar cell, HIGH TEMPERATURE MATERIAL PROCESSES, 11(4) (2007) 575-583: IF=0.257; TC=4
2. Prabakaran, R.; Monteiro, T.; Peres, M.; Viana, A. S; Da Cunha, A. F.; Aguas, H.; Goncalves, A.; Fortunato, E.; Martins, R.; **Ferreira, I.** Optical and structural analysis of porous silicon coated with GZO films using rf magnetron sputtering. THIN SOLID FILMS, 515 (24) (2007) 8664-8669: IF=1.790; TC=31
3. Martins, R., Barquinha, P., Pereira, L., **Ferreira, I**., Fortunato, E., Role of order and disorder in covalent semiconductors and ionic oxides used to produce thin film transistors. APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING, 89 (1) (2007) 37-42: IF=1.44; TC=48
4. Martins, R., Barquinha, P., **Ferreira, I**., Pereira, L., Goncalves, G., Fortunato, E.: Role of order and disorder on the electronic performances of oxide semiconductor thin film transistors. Journal of Applied Physics 101 (2007) 044505-1-7: IF=2.126; TC=259

2006

1. Zhang, S., Pereira, L., Hu, Z., Ranieiro, L., Fortunato, E., **Ferreira, I**., Martins, R.: Characterization of nanocrystalline silicon carbide films. Journal of Non-Crystalline Solids 352 (2006) 1410-1415: IF=1.787; TC=8
2. Zhang, S., Liao, X., Raniero, L., Fortunato, E., Xu, Y., Kong, G., Aguas, H., **Ferreira, I.,** Martins, R.: Silicon thin films prepared in the transition region and their use in solar cells. Solar Energy Materials and Solar Cells 90 (2006) 3001-3008: IF=5.016; TC=27
3. Raniero, L., Fortunato, E., **Ferreira, I.**, Martins, R.: Study of nanostructured/amorphous silicon solar cell by impedance spectroscopy technique. Journal of Non-Crystalline Solids 352 (2006) 1880-1883: IF=1.787; TC=35
4. Raniero, L., **Ferreira, I.,** Pimentel, A., Goncalves, A., Canhola, P., Fortunato, E., Martins, R.: Role of hydrogen plasma on electrical and optical properties of ZGO, ITO and IZO transparent and conductive coatings. Thin Solid Films 511 (2006) 295-298: IF=1.790; TC=110
5. Raniero, L., **Ferreira, I.**, Pereira, L., Aguas, H., Fortunato, E., Martins, R.: Study of nanostructured silicon by hydrogen evolution and its application in p-i-n solar cells. Journal of Non-Crystalline Solids 352 (2006) 1945-1948: IF=1.787; TC= 22
6. Martins, R., Chu, V., Fortunato, E., Conde, J.P., **Ferreira, I**.: Proceedings of the Twenty First International Conference on Amorphous and Nanocrystalline Semiconductors - Science and Technology - Calouste Gulbenkian Foundation, Lisbon, Portugal - September 4-9, 2005 Preface. Journal of Non-Crystalline Solids 352 (2006) VII-VII: IF=1.787; TC=0
7. Martins, R., Almeida, P., Barquinha, P., Pereira, L., Pimentel, A., **Ferreira, I.,** Fortunato, E.: Electron transport and optical characteristics in amorphous indium zinc oxide films. Journal of Non-Crystalline Solids 352 (2006) 1471-1474: IF=1.787; TC=102
8. Martins, N., Canhola, P., Quintela, M., **Ferreira, I.,** Raniero, L., Fortunato, E., Martins, R.: Performances of an in-line PECVD system used to produce amorphous and nanocrystalline silicon solar cells. Thin Solid Films 511 (2006) 238-242: IF=1.790; TC=10

9. **Ferreira, I.,** Fortunato, E., Vilarinho, P., Viana, A.S., Ramos, A.R., Alves, E., Martins, R.: Hydrogenated silicon carbon nitride films obtained by HWCVD, PA-HWCVD and PECVD techniques. Journal of Non-Crystalline Solids 352 (2006) 1361-1366: IF=1.787; TC=59
10. Contreras, J., Baptista, C., **Ferreira, I.**, Costa, D., Pereira, S., Aguas, H., Fortunato, E., Martins, R., Wierzbicki, R., Heerlein, H.: Amorphous silicon position sensitive detectors applied to micropositioning. Journal of Non-Crystalline Solids 352 (2006) 1792-1796: IF=1.787; TC=16

2005

1. Zhang, S., Raniero, L., Fortunato, E., Liao, X., Hu, Z., **Ferreira, I**., Aguas, H., Ramos, A.R., Alves, E., Martins, R.: Characterization of silicon carbide thin films and their use in colour sensor. Solar Energy Materials and Solar Cells 87 (2005) 343-348: IF=5.016; TC=4
2. Zhang, S., Raniero, L., Fortunato, E., **Ferreira, I**., Aguas, H., Martins, R.: Amorphous silicon-based PINIP structure for color sensor. Thin Solid Films 487 (2005) 268-270: IF=1.790; TC=6
3. Raniero, L., Zhang, S., Aguas, H., **Ferreira, I.**, Igreja, R., Fortunato, E., Martins, R.: Role of buffer layer on the performances of amorphous silicon solar cells with incorporated nanoparticles produced by plasma enhanced chemical vapor deposition at 27.12 MHz. Thin Solid Films 487 (2005) 170-173: IF=1.790; TC=27
4. Raniero, L., Martins, N., Canhola, P., Zhang, S., Pereira, S., **Ferreira, I**., Fortunato, E., Martins, R.: Influence of the layer thickness and hydrogen dilution on electrical properties of large area amorphous silicon p-i-n solar cell. Solar Energy Materials and Solar Cells 87 (2005) 349-355: IF=5-016; TC=14
5. Pimentel, A., Fortunato, E., Goncalves, A., Marques, A., Aguas, H., Pereira, L., **Ferreira, I.,** Martins, R.: Polycrystalline intrinsic zinc oxide to be used in transparent electronic devices. Thin Solid Films 487 (2005) 212-215: IF=1.790; TC=67
6. Martins, R., Igreja, R., **Ferreira, I.,** Marques, A., Pimentel, A., Goncalves, A., Fortunato, E.: Room temperature dc and ac electrical behaviour of undoped ZnO films under UV light. Materials Science and Engineering B-Solid State Materials for Advanced Technology 118 (2005) 135-140: IF=2.302; TC=24
7. Fortunato, E., Pereira, L., Aguas, H., **Ferreira, I.,** Martins, R.: Flexible a-Si : H position-sensitive detectors. Proceedings of the Ieee 93 (2005) 1281-1286: IF=5.629; TC=36
8. Canhola, P., Martins, N., Raniero, L., Pereira, S., Fortunato, E., **Ferreira, I**., Martins, R.: Role of annealing environment on the performances of large area ITO films produced by rf magnetron sputtering. Thin Solid Films 487 (2005) 271-276: IF=1.790; TC=72

2004

1. Zhang, S., Raniero, L., Fortunato, E., Pereira, L., Martins, N., Canhola, P., **Ferreira, I**., Nedev, N., Aguas, H., Martins, R.: Characterization of silicon carbide thin films prepared by VHF-PECVD technology. Journal of Non-Crystalline Solids 338-40 (2004) 530-533: IF=1.787; TC=27
2. Raniero, L., Pereira, L., Zhang, S.B., **Ferreira, I**., Aguas, H., Fortunato, E., Martins, R.: Characterization of the density of states of polymorphous silicon films produced at 13.56 and 27.12 MHz using CPM and SCLC techniques. Journal of Non-Crystalline Solids 338-40 (2004) 206-210: IF=1.787; TC=13
3. Raniero, L., Martins, N., Canhola, P., Pereira, S., **Ferreira, I.**, Fortunato, E., Martins, R.: Spectral response of large area amorphous silicon solar cells. High Temperature Material Processes 8 (2004) 293-299: IF=1.787; TC=1

4. Martins, R., Fortunato, E., Nunes, P., **Ferreira, I.**, Marques, A., Bender, M., Katsarakis, N., Cimalla, V., Kiriakidis, G.: Zinc oxide as an ozone sensor. Journal of Applied Physics 96 (2004) 1398-1408: IF=2.126; TC=246
5. Fortunato, E., Pimentel, A., Pereira, L., Goncalves, A., Lavareda, G., Aguas, H., **Ferreira, I.,** Carvalho, C.N., Martins, R.: High field-effect mobility zinc oxide thin film transistors produced at room temperature. Journal of Non-Crystalline Solids 338-40 (2004) 806-809: IF=1.787; TC=188
6. Fortunato, E., Pereira, L., Aguas, H., **Ferreira, I**., Martins, R.: Flexible position sensitive photodetectors based on a-Si : H hetero structures. Sensors and Actuators a-Physical 116 (2004) 119-124: IF=2.214; TC=9
7. Fortunato, E., Goncalves, A., Marques, A., Viana, A., Aguas, H., Pereira, L**., Ferreira, I**., Vilarinho, P., Martins, R.: New developments in gallium doped zinc oxide deposited on polymeric substrates by RF magnetron sputtering. Surface & Coatings Technology 180-81 (2004) 20-25: IF=2.417; TC=76
8. Fortunato, E., Assuncao, V., Goncalves, A., Marques, A., Aguas, H., Pereira, L., **Ferreira, I**., Vilarinho, P., Martins, R.: High quality conductive gallium-doped zinc oxide films deposited at room temperature. Thin Solid Films 451-52 (2004) 443-447: IF=1.790; TC=134
9. **Ferreira, I.**, Igreja, R., Fortunato, E., Martins, R.: Porous a/nc-Si : H films produced by HW-CVD as ethanol vapour detector and primary fuel cell. Sensors and Actuators B-Chemical 103 (2004) 344-349: IF=4.582; TC=17
10. **Ferreira, I.,** Fortunato, E., Martins, R.: Ethanol vapour detector based in porous a-Si : H films produced by HW-CVD technique. Sensors and Actuators B-Chemical 100 (2004) 236-239: IF=4.582; TC=5
11. **Ferreira, I.,** Aguas, H., Pereira, L., Fortunato, E., Martins, R.: Properties of a-Si : H intrinsic films produced by HWPA-CVD technique. Thin Solid Films 451-52 (2004) 366-369: IF=1.790; TC=0
12. Aguas, H., Pereira, L., **Ferreira, I.**, Ramos, A.R., Viana, A.S., Andreu, J., Vilarinho, P., Fortunato, E., Martins, R.: Effect of an interfacial oxide layer in the annealing behaviour of Au/a-Si : H MIS photodiodes. Journal of Non-Crystalline Solids 338-40 (2004) 810-813: IF=1.787; TC=3

2003

1. Martins, R., Aguas, H., **Ferreira, I**., Fortunato, E., Lebib, S., Cabarrocas, P.R.I., Guimaraes, L.: Polymorphous silicon films deposited at 27.12 MHz. Chemical Vapor Deposition 9 (2003) 333-337: IF=1.69; TC=8
2. Fortunato, E., Goncalves, A., Assuncao, V., Marques, A., Aguas, H., Pereira, L., **Ferreira, I**., Martins, R.: Growth of ZnO : Ga thin films at room temperature on polymeric substrates: thickness dependence. Thin Solid Films 442 (2003) 121-126: IF=1.790; TC=135
3. Fortunato, E., Godinho, M.H., Santos, H., Marques, A., Assuncao, V., Pereira, L., Aguas, H., **Ferreira, I.**, Martins, R.: Surface modification of a new flexible substrate based on hydroxypropylcellulose for optoelectronic applications. Thin Solid Films 442 (2003) 127-131: IF=1.790; TC=18.
4. **Ferreira, I.,** Fortunato, E., Martins, R.: Combining HW-CVD and PECVD techniques to produce a-Si : H films. Thin Solid Films 427 (2003) 231-235: IF=1.790; TC=3
5. **Ferreira, I.,** Costa, M.E.V., Fortunato, E., Martins, R.: From porous to compact films by changing the onset conditions of HW-CVD process. Thin Solid Films 427 (2003) 225-230: IF=1.790; TC=4
6. Bender, M., Fortunato, E., Nunes, P., **Ferreira, I**., Marques, A., Martins, R., Katsarakis, N., Cimalla, V., Kiriakidis, G.: Highly sensitive ZnO ozone detectors at room temperature. Japanese Journal of Applied Physics Part 2-Letters 42 (2003) L435-L437: IF=1.122; TC=69
7. Assuncao, V., Fortunato, E., Marques, A., Goncalves, A., **Ferreira, I.,** Aguas, H., Martins, R.: New challenges on gallium-doped zinc oxide films prepared by r.f. magnetron sputtering. Thin Solid Films 442 (2003) 102-106, IF=1.790; TC=118

8. Assuncao, V., Fortunato, E., Marques, A., Aguas, H., **Ferreira, I**., Costa, M.E.V., Martins, R.: Influence of the deposition pressure on the properties of transparent and conductive ZnO : Ga thin-film produced by r.f. sputtering at room temperature. Thin Solid Films 427 (2003) 401-405: IF=1.790; TC=402
9. Aguas, H., Silva, V., Fortunato, E., Lebib, S., Cabarrocas, P.R.I., **Ferreira, I.**, Guimaraes, L., Martins, R.: Large area deposition of polymorphous silicon by plasma enhanced chemical vapor deposition at 27.12 MHz and 13.56 MHz. Japanese Journal of Applied Physics Part 1-Regular Papers Short Notes & Review Papers 42 (2003) 4935-4942: IF=1.122; TC=46

2002

1. Pereira, L., Brida, D., Fortunato, E., **Ferreira, I.**, Aguas, H., Silva, V., Costa, M.F.M., Teixeira, V., Martins, R.: a-Si : H interface optimisation for thin film position sensitive detectors produced on polymeric substrates. Journal of Non-Crystalline Solids 299 (2002) 1289-1294: IF=1.787; TC=17
2. Martins, R., Figueiredo, J., Silva, V., Aguas, H., Soares, F., Marques, A., **Ferreira, I**., Fortunato, E.: 32 linear array position sensitive detector based on NIP and hetero a-Si : H microdevices. Journal of Non-Crystalline Solids 299 (2002) 1283-1288: IF=1.787; TC=12
3. Martins, R., **Ferreira, I.**, Aguas, H., Silva, V., Fortunato, E., Guimaraes, L.: Engineering of a-Si : H device stability by suitable design of interfaces. Solar Energy Materials and Solar Cells 73 (2002) 39-49: IF=; TC=8
4. Martins, R., Aguas, H., Silva, V., **Ferreira, I**., Cabrita, A., Fortunato, E.: Silicon nanostructure thin film materials. Vacuum 64 (2002) 219-226: IF=1.615; TC=3
5. Kholkin, A.L., Martins, R., Aguas, H., **Ferreira, I.**, Silva, V., Smirnova, O.A., Costa, M.E.V., Vilarinho, P.M., Fortunato, E., Baptista, J.L.: Metal-ferroelectric thin film devices. Journal of Non-Crystalline Solids 299 (2002) 1311-1315: IF=1.787; TC=10
6. Fortunato, E., Nunes, P., Marques, A., Costa, D., Aguas, H., **Ferreira, I.**, da Costa, M.E.V., Godinho, M.H., Almeida, P.L., Borges, J.P., Martins, R.: Influence of the strain on the electrical resistance of zinc oxide doped thin film deposited on polymer substrates. Advanced Engineering Materials 4 (2002) 610-612: IF=1.61; TC=44
7. Fortunato, E., Nunes, P., Marques, A., Costa, D., Aguas, H., **Ferreira, I**., Costa, M.E.V., Godinho, M.H., Almeida, P.L., Borges, J.P., Martins, R.: Transparent, conductive ZnO : Al thin film deposited on polymer substrates by RF magnetron sputtering. Surface & Coatings Technology 151 (2002) 247-251: IF=2.417; TC=77
8. Fortunato, E., Nunes, P., Costa, D., Brida, D., **Ferreira, I.,** Martins, R.: Characterization of aluminium doped zinc oxide thin films deposited on polymeric substrates. Vacuum 64 (2002) 233-236: IF=1.615; TC=73
9. Fortunato, E., Brida, D., Pereira, L., Aguas, H., Silva, V., **Ferreira, I**., Costa, M.F.M., Teixeira, T., Martins, R.: Dependence of the strains and residual mechanical stresses on the performances presented by a-Si : H thin film position sensors. Advanced Engineering Materials 4 (2002) 612-616: IF=1.61; TC=8
10. **Ferreira, I**., Fortunato, E., Pereira, L., Elisabete, M., Costa, V., Martins, R.: The properties of a-Si : H films deposited on Mylar substrates by hot-wire plasma assisted technique. Journal of Non-Crystalline Solids 299 (2002) 30-35: IF=1.787; TC=0
11. **Ferreira, I**., Fortunato, E., Martins, R., Vilarinho, P.: Hot-wire plasma assisted chemical vapor deposition: A deposition technique to obtain silicon thin films. Journal of Applied Physics 91 (2002) 1644-1649: IF=2.126; TC=3

12. **Ferreira, I**., Cabrita, A., Fortunato, E., Martins, R.: Composition and structure of silicon-carbide alloys obtained by hot wire and hot wire plasma assisted techniques. Vacuum 64 (2002) 261-266: IF=1.615; TC=18
13. **Ferreira, I**., Cabrita, A., Fernandes, F.B., Fortunato, E., Martins, R.: Morphology and structure of nanocrystalline p-doped silicon films produced by hot wire technique. Vacuum 64 (2002) 237-243: IF=1.615; TC=10
14. Fernandes, F.M.B., Martins, R., Nogueira, M.T., Silva, R.J.C., Nunes, P., Costa, D., **Ferreira, I**., Martins, R.: Structural characterisation of NiTi thin film shape memory alloys. Sensors and Actuators a-Physical 99 (2002) 55-58: IF=2.214; TC=18
15. Brida, D., Fortunato, E., Aguas, H., Silva, V., Marques, A., Pereira, L., **Ferreira, I**., Martins, R.: New insights on large area flexible position sensitive detectors. Journal of Non-Crystalline Solids 299 (2002) 1272-1276: IF=1.787ß; TC=49

LIST OF PUBLICATIONS IN THE SCIENCE CITATION INDEX - ISI: BEFORE PHD

2001-1989

1. Martins-R; Aguas-H; Silva-V; Ferreira-I; Cabrita-A; Fortunato-E, Silicon films produced by PECVD under powder formation conditions Materials-Science-Forum. vol.382; 2001; p.21-8
2. Ferreira-I; Cabrita-A; Brat-Fernandes-F; Fortunato-E; Martins-R, Role of the gas pressure and hydrogen dilution on the properties of large area nanocrystalline p-type silicon films produced by hot wire technique, Materials-Science-&-Engineering-C,-Biomimetic-and-Supramolecular-Systems. vol.C15, no.1-2; 2001; p.141-4
3. Ferreira-I; Silva-V; Aguas-H; Fortunato-E; Martins-R, Mass spectroscopy analysis during the deposition of a-SiC:H and a-C:H films produced by hot wire and hot wire plasma-assisted techniques, Applied-Surface-Science. vol.184, no.1-4; 12 Dec. 2001; p.60-5
4. Cabrita-A; Pereira-L; Brida-D; Lopes-A; Marques-A; Ferreira-I; Fortunato-E; Martins-R, Silicon carbide photodiodes: Schottky and PINIP structures, Applied-Surface-Science. vol.184, no.1-4; 12 Dec. 2001; p.437-42
5. Ferreira-I; Costa-MEV; Pereira-L; Fortunato-E; Martins-R; Ramos-AR; Silva-MF, Silicon carbide alloys produced by hot wire, hot wire plasma-assisted and plasma-enhanced CVD techniques, Applied-Surface-Science. vol.184, no.1-4; 12 Dec. 2001; p.8-19
6. Cabrita-A; Figueiredo-J; Pereira-L; Aguas-H; Silva-V; Brida-D; Ferreira-I, Thin film position sensitive detectors based on pin amorphous silicon carbide structures, Applied-Surface-Science. vol.184, no.1-4; 12 Dec. 2001; p.443-7
7. Martins-R; Silva-V; Ferreira-I; Domingues-A; Fortunato-E, Role of the gas temperature and power to gas flow ratio on powder formation and properties of films grown by the PECVD technique, Materials-Science-&-Engineering-B-(Solid-State-Materials-for-Advanced-Technology). vol.B69-70; 19 Jan.2000; p.272-7
8. Fortunato-E; Teodoro-P; Silva-V; Ferreira-I; Nunes-Y; Guimaraes-N; Soares-F; Giuliani-F; Popovic-G; Brener-W; Martins-R, Performances of an optical ruler based on one-dimensional hydrogenated amorphous Si position-sensitive detectors produced using different metal contacts, Philosophical-Magazine-B-(Physics-of-Condensed-Matter:-Statistical-Mechanics,-Electronic,-Optical-and-Magnetic-Properties. vol.80, no.4; April 2000; p.765-74
9. Agua-H; Silva-V; Ferreira-I; Fortunato-E; Martins-R, Study of the effect of different plasma-enhanced chemical vapour deposition reactor configurations on the properties of hydrogenated amorphous

silicon thin films, Philosophical-Magazine-B-(Physics-of-Condensed-Matter:-Statistical-Mechanics,-Electronic,-Optical-and-Magnetic-Properties. vol.80, no.4; April 2000; p.475-86

10. Fortunato-E; Ferreira-I; Giuliani-F; Wurmsdobler-P; Martins-R, New ultra-light flexible large area thin film position sensitive detector based on amorphous silicon, Journal-of-Non-Crystalline-Solids. vol.266-269; May 2000; p.1213-17
11. Martins-R; Ferreira-I; Cabrita-A; Fortunato-E, Improvement of a-Si:H device stability and performances by proper design of the interfaces, Journal-of-Non-Crystalline-Solids. vol.266-269; May 2000; p.1094-8
12. Martins-R; Aguas-H; Cabrita-A; Tonello-P; Silva-V; Ferreira-I; Fortunato-E; Guimaraes-L, New nanostructured silicon films grown by PECVD technique under controlled powder formation conditions [for solar cells],Solar-Energy. vol.69, no.1-6; 2000; p.263-9
13. Martins-R; Aguas-H; Ferreira-I; Fortunato-E; Guimaraes-L, Towards the improvement of the stability of a-Si:H pin devices, Solar-Energy. vol.69, no.1-6; 2000; p.257-62
14. Fortunato-E; Ferreira-I; Giuliani-F; Martins-R, Flexible large area thin film position sensitive detectors, Sensors-and-Actuators-A-(Physical). vol.A86, no.3; 15 Nov. 2000; p.182-6
15. Goncalves-C; Ferreira-J; Fortunato-E; Ferreira-I; Martins-R; Marvao-AP; Martins-JI; Harder-T; Oppelt-R, New metallurgical systems for electronic soldering applications, Sensors-and-Actuators-A-(Physical). vol.A74, no.1-3; 20 April 1999; p.70-6.
16. Martins-R; Ferreira-I; Fernandes-B; Fortunato-E, Performances of a-Si:H films produced by hot wire plasma assisted technique Vacuum vol.52, no.1-2; Jan. 1999; p.203-8.
17. Ferreira-I; Fernandes-B; Martins-R, Nanocrystalline silicon carbon doped films prepared by hot wire technique, Vacuum. vol.52, no.1-; Jan. 1999; p.147-52
18. Ferreira-I; Águas H; Mendes L.; Martins-R, Role of the hot wire filament temperature on the structure and morphology of nanocrystalline silicon p-doped films, Applied Surface Science. vol.144-145, 1999; p.690-6
19. Martins-R; Ferreira-I; Fernandes-F; Fortunato-E, Journal-of-Non-Crystalline-Solids. vol.227-230, pt.B; May 1998; p.901-5
20. Martins-R; Macarico-A; Ferreira-I; Nunes-R; Bicho-A; Fortunato-E, Highly conductive and highly transparent n-type microcrystalline silicon thin films, Thin-Solid-Films. vol.303, no.1-2; 15 July 1997; p.47-52.
21. Martins-R; Vieira-M; Ferreira-I; Fortunato-E; Guimaraes-L, Transport properties of doped silicon oxycarbide microcrystalline films produced by spatial separation techniques, Solar-Energy-Materials-and-Solar-Cells. vol.41-42; June 1996; p.493-517.
22. Martins-R; Vieira-M; Ferreira-I; Fortunato-E, Role of oxygen partial pressure on the properties of doped silicon oxycarbide microcrystalline layers produced by spatial separation techniques, Journal-of-Vacuum-Science-&-Technology-A-(Vacuum,-Surfaces,-and-Films). vol.13, no.4; July-Aug. 1995;p.2199-209.
23. Martins-R; Ferreira-I, Engineering of the energy coupling in PECVD system used to produce large area a-Si:H coatings, Vacuum. vol.45, n.10/11, 1994; p.1107-8.
24. Zeman-M; Ferreira-I; Geerts-MJ; Metselaar-JW, The effect of hydrogen dilution on glow discharge a-SiGe:H alloys, Solar-Energy-Materials. vol.21, no.4; Jan. 1991; p.255-65
25. Martins-R; Ferreira-I; Carvalho-N; Guimaraes-L, Engineering of plasma deposition systems used for producing large area a-Si:H devices, Journal-of-Non-Crystalline-Solids. vol.137-138, pt.2; Dec. 1991; p.757-60

26. Zeman-M; Ferreira-I; Geerts-MJ; Metselaar-JW, The influence of deposition parameters on the growth of a-SiGe:H alloys in a plasma CVD system, Applied-Surface-Science. vol.46; Dec. 1990; p.245-8
27. Fortunato-E; Martins-R; Ferreira-I; Santos-M; Macarico-A; Guimaraes-L, Tunneling in vertical _c-Si/a-Si xCyOz:H/ _c-Si heterostructures, Journal-of-Non-Crystalline-Solids. vol.115, no.1-3; Dec. 1989; p.120-2
28. Martins-R; Willeke-G; Fortunato-E; Ferreira-I; Vieira-M; Santos-M; Macarico-A; Guimaraes-L. Transport in _c-Six:Cy:Oz:H films repared by a TCDDC system Journal-of-Non-Crystalline-Solids. vol.114, pt.2; 1989; p.486-8.
29. Lavado-M; Martins-R; Ferreira-I; Lavareda-G; Fortunato-E; Vieira-M; Guimaraes-L, Electron paramagnetic resonance of defects in doped microcrystalline silicon, Vacuum. vol.39, no.7-8; 1989; p.791-4.
30. Contreras, J., Idzikowski, M. ; Pereira, S. ; Filonovich, S.A. ; Fortunato, E. ; Martins, R. ; Ferreira, I.

PUBLICATIONS IN CONFERENCES CITED IN PROCEEDINGS OF ISI

1. Martins, R., Pereira, L., Barquinha, P., Ferreira, I., Prabakaran, R., GonÃ§alves, G., GonÃ§alves, A., Fortunato, E.,Zinc oxide and related compounds: Order within the disorder,2009,Proceedings of SPIE - The International Society for Optical Engineering,7217, 72170B,
2. Prabakaran, R., Aguas, H., Pereira, L., Elangovan, E., Fortunato, E., Martins, R., Ferreira, I.,Optical and microstructural investigations of porous silicon coated with a-Si:H using PECVD technique,2008,Materials Science Forum,587-588, 308,312
3. Martins, R., Pereira, L., Barquinha, P., Correia, N., GonÃ§alves, G., Ferreira, I., Dias, C., Fortunato, E.,Floating gate memory paper transistor,2010,Proceedings of SPIE - The International Society for Optical Engineering,7603,,760314
4. Zhang, S., Hu, Z., Raniero, L., Liao, X., Ferreira, I., Fortunato, E., Vilarinho, P., Perreira, L., Martins, R.: The study of high temperature annealing of a-SiC:H films. Advanced Materials Forum Iii, Pts 1 and 2, Vol. 514-516 (2006) 18-22
5. Raniero, L., Goncalves, A., Pimentel, A., Zhang, S., Ferreira, I., Vilarinho, P.M., Fortunato, E., Martins, R.: Role of hydrogen plasma on the electrical and optical properties of indium zinc transparent conductive oxide. Advanced Materials Forum Iii, Pts 1 and 2, Vol. 514-516 (2006) 63-67
6. Martins, R, D Costa, H Aguas, F Soares, A Marques, I Ferreira, P Borges, S Pereira, L Raniero, and E Fortunato 2006. Insights on amorphous silicon nip and MIS 3D position sensitive detectors. In Advanced Materials Forum Iii, Pts 1 and 2, 514-516, PM Vilarinho, editor.
7. Fortunato, E., Goncalves, A., Marques, A., Pimentel, A., Barquinha, P., Aguas, H., Pereira, L., Raniero, L., Goncalves, G., Ferreira, I., Martins, R.: Multifunctional thin film zinc oxide semiconductors: Application to electronic devices. Advanced Materials Forum Iii, Pts 1 and 2, Vol. 514-516 (2006) 3-7
8. Martins, R., Costa, D., Aguas, H., Soares, F., Marques, A., Ferreira, I., Borges, P., Pereira, S., Raniero, L., Fortunato, E.: Insights on amorphous silicon nip and MIS 3D position sensitive detectors. Advanced Materials Forum Iii, Pts 1 and 2, Vol. 514-516 (2006) 13-17
9. S. Zhang, L. Pereira, A.R.Ramos, E. Alves, L. Ranieiro, E. Fortunato, I. Ferreira, R. Martins, “Characterization of Nanocrystalline Silicon Carbide Films” Proc. 20th European Photovoltaic Solar Energy Conference, 6 – 10 June 2005, Barcelona, Spain, , pp. 424-427 (2005).
10. L. Raniero, I. Ferreira, H. Águas, S. Zhang, E. Fortunato and R. Martins. “Study of a-SiC:H buffer layer on nc-Si/a-Si:H solar cells deposited by PECVD technique”. Proceedings of IEEE 31st Photovoltaic Specialists Conference and Exhibition, Orlando, USA, January, 3-7, pp. 1549-1551 (2005).

11. L. Raniero, A. Gonçalves, A. Pimentel, I. Ferreira, S. Zhang, L. Pereira, H. Águas, E. Fortunato and R. Martins. "Influence of Hydrogen Plasma on electrical and optical properties of transparent conductive oxides". MRS, Spring Meeting, Symposium A, Vol. 862, pp. 543-548 (2005).
12. S. Zhang, L. Raniero, E. Fortunato, L. Pereira, H. Águas, I. Ferreira and R. Martins. "Amorphous silicon based p-i-n structure for color sensor". MRS, Spring Meeting, Symposium A, Vol. 862, pp. 679-683 (2005).
13. Fortunato, E., Assuncao, V., Marques, A., Goncalves, A., Aguas, H., Pereira, L., Ferreira, I., Fernandes, F.M.B., Silva, R.J.C., Martins, R.: ZnO : Ga thin films produced by RF sputtering at room temperature: Effect of the power density. Advanced Materials Forum Ii, Vol. 455-456 (2004) 12-15
14. Martins, R., Aguas, H., Ferreira, I., Fortunato, E., Raniero, L., Cabarrocas, P.R.I.: Composition, structure and optical characteristics of polymorphous silicon films deposited by PECVD at 27.12 MHz. Advanced Materials Forum Ii, Vol. 455-456 (2004) 100-103
15. Aguas, H., Pereira, L., Ferreira, I., Ramos, A.R., Viana, A.S., Andreu, J., Vilarinho, P., Fortunato, E., Martins, R.: Effect of annealing on gold rectifying contacts in amorphous silicon. Advanced Materials Forum Ii, Vol. 455-456 (2004) 96-99
16. Raniero, L., Aguas, H., Pereira, L., Fortunato, E., Ferreira, I., Martins, R.: Batch processing method to deposit a-Si : H films by PECVD. Advanced Materials Forum Ii, Vol. 455-456 (2004) 104-107
17. Raniero, L., Martins, R., Aguas, H., Zang, S., Ferreira, I., Pereira, L., Fortunato, E., Boufendi, L.: Growth of polymorphous/nanocrystalline silicon films deposited by PECVD at 13.56 MHz. Advanced Materials Forum Ii, Vol. 455-456 (2004) 532-535
18. Aguas, H, L Pereira, I Ferreira, AR Ramos, AS Viana, J Andreu, P Vilarinho, E Fortunato, and R Martins 2004. Effect of annealing on gold rectifying contacts in amorphous silicon. In Advanced Materials Forum Ii, 455-456, R Martins, E Fortunato, I Ferreira, and C Dias, editors.
19. Fortunato, E, V Assuncao, A Marques, A Goncalves, H Aguas, L Pereira, I Ferreira, FMB Fernandes, RJC Silva, and R Martins 2004. ZnO : Ga thin films produced by RF sputtering at room temperature: Effect of the power density. In Advanced Materials Forum Ii, 455-456, R Martins, E Fortunato, I Ferreira, and C Dias, editors.
20. R. Martins, D. Costa, H. Águas, F. Soares, A. Marques, I. Ferreira, P. Borges, E. Fortunato. "Detection limits of A Linear Array Position Sensitive Detector based on NIP a-Si:H structures". MRS, Spring Meeting, Symposium A, Amorphous and Nanocrystalline Silicon, Science and Technology, Vol. 808, pp. A.4.45.1-A4.45.6 (2004).
21. E. Fortunato, P. Barquinha, A. Pimentel, A. Gonçalves, L. Pereira, A. Marques, R. Martins. "Next Generation of Thin Film Transistors based on Zinc Oxide". MRS, Spring Meeting, Symposium E, Integration Challenges in Next Generation Oxided-based Nanoelectronics, vol. 811, pp. 347-352, (2004).
22. E. Fortunato, A. Pimentel, A. Gonçalves, A. Marques, R. Martins. "High Mobility Nanocrystalline Indium Doped Zinc Oxide Deposited at Room Temperature". MRS, Spring Meeting, Symposium E, Integration Challenges in Next Generation Oxided-based Nanoelectronics, vol. 811, pp. 437-442 (2004).
23. E. Fortunato, A. Gonçalves, C.N. Carvalho, A. Pimentel, G. Lavareda, , A. Marques, R. Martins. "Enhancement of the electrical properties of ITO deposited on polymeric substrates by using a ZnO buffer layer". MRS, Spring Meeting, Symposium I, Flexible Electronics-Materials and devices technology, Vol. 814, pp. 231-236 (2004).
24. S. Zang, X. Liao, L. Raniero, E. Fortunato, Y. Xu, H. Águas, I. Ferreira and R. Martins, "Polymorphous silicon thin films and their use in solar cells". Technical Digest of 14th International Photovoltaic and Engineering Conference, Bankok, Thailand, 26-30 January 2004, Vol. 1 pp. 43-44.

25. A. Pimentel, E. Fortunato, A. Gonçalves, A. Marques, H. Águas, L. Pereira, I. Ferreira and R. Martins, "High Electron Mobility Indium Doped Zinc Oxide Deposited at Room Temperature by r.f. Magnetron Sputtering". Technical Digest of 14th International Photovoltaic and Engineering Conference, Bankok, Thailand, 26-30 January 2004, Vol. 1 pp. 353-354.
26. E. Fortunato, V. Assunção, A. Gonçalves, A. Marques, A. Pimentel, H. Águas, L. Pereira, I. Ferreira and R. Martins, "Effect of the Deposition Pressure on the Morphological Properties Presented by ZnO:Ga Thin Films Deposited by r.f. Magnetron Sputtering". Technical Digest of 14th International Photovoltaic and Engineering Conference, Bankok, Thailand, 26-30 January 2004, Vol. 1 pp. 357-358.
27. E. Fortunato, V. Assunção, A. Gonçalves, A. Marques, A. Pimentel, H. Águas, L. Pereira, I. Ferreira and R. Martins, "Effect of Thickness on the Properties of Gallium Doped Zinc Oxide Deposited at Room Temperature by r.f. Magnetron Sputtering on Plastic substrates". Technical Digest of 14th International Photovoltaic and Engineering Conference, Bankok, Thailand, 26-30 January 2004, Vol. 1 pp. 457-458.
28. N. Martins, P. Canhola, A. Alentejano, R. Martins, E. Fortunato, I. Ferreira, L. Raniero. "Performances of an in-line PECVD System Used to High Efficiency Amorphous and Nanocrystalline Silicon Solar Cells". Technical Digest of 14th International Photovoltaic and Engineering Conference, Bankok, Thailand, 26-30 January 2004, Vol. 2, 653-654.
29. N. Martins, P. Canhola, L. Raniero, S. Zhang, E. Fortunato, R. Teixeira, R. Martins, I. Ferreira, L. Guimarães. "Industrial Approach on Solar Cells Research and Development". Proceedings of the 10th International Energy Forum Conference, Energex 2004, ISBN 972-8893-000-0, Lisbon, Portugal, 03-06 May 2004, 257-266.
30. L. Raniero, N. Martins, P. Canhola, S. Zhang, S. Pereira, E. Fortunato, R. Martins, I. Ferreira, L. Guimarães. "Influence of the n-layer thickness and hydrogen dilution on electrical performances of large area amorphous p-i-n solar cells". Proceedings of the 10th International Energy Forum Conference, Energex 2004, ISBN 972-8893-000-0, Lisbon, Portugal, 03-06 May 2004, 267-271.
31. N. Martins, P. Canhola, L. Raniero, A. Silva, E. Fortunato, R. Teixeira, S. Pereira, R. Martins, I. Ferreira, L. Guimarães. "Development of New Production Techniques for Highly efficient Polymorphous Solar Cells: a Reliable Clean Energy Source". Proceedings of the 10th International Energy Forum Conference, Energex 2004, ISBN 972-8893-000-0, Lisbon, Portugal, 03-06 May 2004, 277-293.
32. E. Fortunato, A. Gonçalves, A. Marques, V. Assunção, I. Ferreira, H. Águas, L. Pereira, and R. Martins. "Gallium zinc oxide coated polymeric substrates for optoelectronic applications". MRS, Spring Meeting, Symposium H, flexible electronics, vol. 769 (2003), pp. 291-296.
33. E. Fortunato, V. Assunção, A. Marques, I. Ferreira, H. Águas, L. Pereira, R. Martins, "Characterization of transparent and conductive ZnO:Ga thin films produced by rf sputtering at room temperature". MRS, Spring Meeting, Symposium B, compounds for solar cell applications, vol. 763 (2003), pp. 225-230.
34. Isabel Ferreira, Elvira Fortunato and Rodrigo Martins "Porous a-Si:H films produced by HW-CVD as ethasnol vapour and primary cell" Eurosensors XVII. The 17ª European conference on solid state transducers, CD (2003) pp.756-759.
35. Isabel Ferreira, Elvira Fortunato and Rodrigo Martins "Flexible position sensitive detector based on pin structures produced by PAHW-CVD" Eurosensors XVII. The 17ª European conference on solid state transducers, CD (2003) pp.1075-1078.
36. Ferreira, I, P Vilarinho, F Fernandes, E Fortunato, and R Martins 2002. Influence of hydrogen gas dilution on the properties of silicon-doped thin films prepared by the hot-wire plasma-assisted technique. In Advanced Materials Forum I, 230-2, T Vieira, editor.

37. Fortunato, E, P Nunes, A Marques, D Costa, H Aguas, I Ferreira, MEV Costa, and R Martins 2002. Highly conductive/transparent ZnO:Al thin films deposited at room temperature by rf magnetron sputtering. In Advanced Materials Forum I, 230-2, T Vieira, editor.
38. Martins, R, I. Ferreira, and E Fortunato 2002. Growth model of gas species produced by the hot-wire and hot-wire plasma-assisted techniques. In Advanced Materials Forum I, 230-2, T Vieira, editor.
39. E. Fortunato, D. Brida, H. Águas, A. Marques, L. Pereira, I. Ferreira and R. Martins. "A new ZnO:Al/a.Si:H heterostructure to be used in large area flexible position sensitive detectors". Eurosensors XVI. The 16ª European conference on solid-state transducers ISBN 80-01-02576-4 (2002) pp. 389-390.
40. V. Assunção, E. Fortunato, A. Marques, I. Ferreira, H. Águas, R. Martins. "New challenges on gallium doped zinc oxide films prepared by r.f. magnetron sputtering". Proc. 4th Int. Conf. On Coatings on Glass, (Braunschweig, Alemanha, 3-7 November, 2002), pp. 351-359.
41. E. Fortunato, V. Assunção, A. Marques, I. Ferreira, H. Águas, R. Martins. "Growth of GZO films at room temperature on polymeric substrates for optoelectronic applications". Proc. 4th Int. Conf. On Coatings on Glass, (Braunschweig, Alemanha, 3-7 November, 2002), pp. 431-439.
42. E. Fortunato, M.H. Godinho, A. Marques, H. Santos, I. Ferreira, H. Águas, R. Martins. "Surface modification of flexible substrates based on hydroxypropylcellulose for optoelectronic applications". Proc. 4th Int. Conf. On Coatings on Glass, (Braunschweig, Alemanha, 3-7 November, 2002), pp. 447-453.
43. Martins, R., Ferreira, I., Fortunato, E.: Growth model of gas species produced by the hot-wire and hot-wire plasma-assisted techniques. Advanced Materials Forum I, Vol. 230-2 (2002) 603-606
44. Kholkin, A.L., Iakovlev, S., Fortunato, E., Martins, R., Ferreira, I., Shvartsman, V., Baptista, J.L.: Optical and photoelectric properties of PZT films for microelectronic applications. Advanced Materials Forum I, Vol. 230-2 (2002) 563-566; TC=1; IF=na.
45. Fortunato, E., Nunes, P., Marques, A., Costa, D., Aguas, H., Ferreira, I., Costa, M.E.V., Martins, R.: Highly conductive/transparent ZnO : Al thin films deposited at room temperature by rf magnetron sputtering. Advanced Materials Forum I, Vol. 230-2 (2002) 571-574
46. Ferreira, I., Vilarinho, P., Fernandes, F., Fortunato, E., Martins, R.: Influence of hydrogen gas dilution on the properties of silicon-doped thin films prepared by the hot-wire plasma-assisted technique. Advanced Materials Forum I, Vol. 230-2 (2002) 591-594
47. Cabrita, A., Pereira, L., Brida, D., Silva, V., Ferreira, I., Fortunato, E., Martins, R.: Role of the density of states in the colour selection of the collection spectrum of amorphous silicon-based Schottky photodiodes. Advanced Materials Forum I, Vol. 230-2 (2002) 559-562; TC=4, IF=1.616

ORAL COMUNICATIONS

1. I Ferreira, AZO thin films deposited by ALD showing state of art thermoelectric properties, ECT Lisbon, 2016.
2. J. Loureiro….I.Ferreira, Metal oxides thin films for transparent thermoelectric applications, ECT Lisbon, 2016.
3. C. Bianchi, … I. Ferreira, V2O5 Thin films seebeck coefficient optimization and application in flexible and transparent temperature sensor, ECT Lisbon, 2016.
4. J. Loureiro, …, I. Ferreira, Cutting-Edge Room Temperature Thermoelectric Properties of AZO Thin Films, Electronic Materials and Applications 2014, 22-24 January 2014, Orlando, FL, USA
5. J. Loureiro, …, I. Ferreira, Thermoelectric modules using p-type CuZnO and n-type NiZnO thin film oxides, Electronic Materials and Applications 2014, 22-24 January 2014, Orlando, FL, USA.

6. R. Santos, … and I. Ferreira*, Influence of post-annealing on the thermoelectric properties of V2O5 thin films deposited by thermal evaporation, E-MRS 2012 Spring Meeting, 14-17 May 2012, Strasbourg, France
   Morawiec, Seweryn; Mendes, Manuel J; Filonovich, Sergej A; Mateus, Tiago; Mirabella, Salvatore; Águas, Hugo; Ferreira, Isabel; Simone, Francesca; Fortunato, Elvira; Martins, Rodrigo; ,Photocurrent enhancement in thin a-Si: H solar cells via plasmonic light trapping,CLEO: Science and Innovations,,,STh3I. 4, 2014,Optical Society of America, Oral
7. A.C. Baptista, J.P. Neto, J.I. Martins, E. Fortunato, R. Martins, J.P. Borges and I. Ferreira; Flexible and lightweight bioelectrochemical devices based on electrospun membranes. EMRS-FALL MEETING 2011, 19-23 September 2011, Warsaw, Poland. Oral
8. Martins, R.; Pereira, L.; Barquinha, P.; Correia, N.; Gonçalves, G.; Ferreira, I.; Dias, C.; Fortunato, E., Floating gate memory paper transistor. SPIE - The International Society for Optical Engineering 2010, 7603. Oral
9. Martins, R.; Pereira, L.; Barquinha, P.; Ferreira, I.; Prabakaran, R.; Gonçalves, G.; Gonçalves, A.; Fortunato, E., Zinc oxide and related compounds: Order within the disorder. SPIE - The International Society for Optical Engineering 2009, 7217. Oral
10. R. Prabakaran, R. Kesavamoorthy, C.S. Sundar, V.S. Sastry, E. Fortunato, R. Martins and I. Ferreira, Effects of copper phthalocyanine coating on the photoluminescence properties of porous silicon - Oral
11. R. Prabakaran, R. Kesavamoorthy, E. Fortunato, R. Martins and I. Ferreira,Raman and spectroscopic ellipsometry studies on silicon nanostructured films – Oral; ICANS – International Conference on Amorphous and Nanocrystalline Semiconductors –Agosto 2007 – USA
12. R. Prabakaran, E. Fortunato, R. Martins and I. Ferreira,Investigation of hydrocarbon coated porous silicon using HWCVD technique to detect CO2 and H2 gases -oral
13. R. Prabakaran, H. Aguas, E. Fortunato, R. Martins and I. Ferreira,n-PS/a-Si:H heterojunction for device application - oral
14. R. Prabakaran, E. Fortunato, R. Martins and I. Ferreira,The effects of different passivating layers on the photoluminescence properties of porous silicon for the advanced optoelectronic devices - oral
15. L. Raniero, I. Ferreira, H. Águas, E. Fortunato and R. Martins, “Nanostructured Silicon Films Applied to pin Solar Cells”, ICOOPMA-2006, chaired by Jai Singh, Charles Darwin University, Darwin Australia, 16-20 July 2006, OL37. Oral
16. P. Prabakaran, I. Ferreira, T. Monteiro, A.F. da Cunha, M. Peres, Z. Hu, H. Águas, A. Gonçalves, E. Fortunato, R. Martins, “Optical and structural analysis of ZnO:Ga films coated porous silicon using rf magnetron sputtering- a reality towards optoelectronic devices”, session C4, 1st International symposium on transparent conductive oxides, 23-25 October 2006, Crete- Greece, p-40. Oral
17. R. Martins, E. Fortunato L. Raniero, I. Ferreira, A. Marques, “MIS 3D position sensitive detectors”. TO 1.025, p.27. Materiais 2005, III IMS, Aveiro 20-23 March 2005. Oral.
18. Ferreira, L. Raniero, R. Igreja, A. Pimentel, A. Gonçalves, E. Fortunato, R. Martins, “In-situ Spectroscopic Impedance of Different Transparent Conductive Oxides before and After sustaining Hydrogen Plasma”, D2.10 (oral). MRS, Spring Meeting, Symposium D, Materials integration and technology for monolithic Instruments S. Francisco (USA), March 28-April 1 2005. Oral
19. Ferreira, E. Fortunato, P. Vilarinho and R. Martins. “Hydrogenated Silicon Carbon Nitride Films Obtained by HWCVD Technique”. MO7.3, p. 24, ICANS 21, Lisbon (Portugal), 4-9 September, 2005. Oral.
20. L. Raniero, H. Águas, I. Ferreira, L. Pereira, E. Fortunato and R. Martins. “Solar Cells Enhanced by Nanostructured Intrinsic Layer”. FO1.5, p. 415, ICANS 21, Lisbon (Portugal), 4-9 September, 2005. Oral.

21. N. Martins, P. Canhola, L. Raniero, S. Zhang, E. Fortunato, R. Teixeira, R. Martins, I. Ferreira, L. Guimarães. “Industrial Approach on Solar Cells Research and Development”. 10th International Energy Forum Conference, Energex 2004, Lisbon, Portugal, 03-06 May 2004. Oral.
22. L. Raniero, N. Martins, P. Canhola, S. Zhang, S. Pereira, E. Fortunato, R. Martins, I. Ferreira, L. Guimarães. “Influence of the n-layer thickness and hydrogen dilution on electrical performances of large area amorphous p-i-n solar cells”. 10th International Energy Forum Conference, Energex 2004, Lisbon, Portugal, 03-06 May 2004. Oral.~
23. N. Martins, P. Canhola, L. Raniero, A. Silva, E. Fortunato, R. Teixeira, S. Pereira, R. Martins, I. Ferreira, L. Guimarães. “Development of New Production Techniques for Highly efficient Polymorphous Solar Cells: a Reliable Clean Energy Source”. 10th International Energy Forum Conference, Energex 2004, Lisbon, Portugal, 03-06 May 2004. Oral.
24. E. Fortunato, P. Barquinha, A. Pimentel, A. Gonçalves, G. Lavareda, H. Águas, I. Ferreira, C.N. Carvalho, R. Martins. “Invisible thin film transistors based on zinc oxide”. EMRS, Symp. D-X.1 (Strasbourg, France, 24-28 May, 2004). Oral.
25. S. Zhang, R. Martins, L. Raniero, E. Fortunato, H. Águas, I. Ferreira. “Amorphous silicon based pinip Structure for color sensor”. 8th International Conference on Polycrystalline Semiconductors 2004 - September 5-10, 2004 - University of Potsdam, Germany (oral, Fr1.4). Oral.
26. R. Martins, H. Águas, D. Costa, S. Pereira, I. Ferreira, A. Marques, E. Fortunato. “3D position sensitive detectors for pattern recognition applications”. EMRS, fall meeting Symposium D: "Applications of Linear and Area Detectors for X-ray and Neutron Diffraction and Spectroscopy" (Warsaw, Poland, 6-10 September 2004) (convidada).p.137 of proceedings. Oral
27. R. Martins, L. Raniero, I. Ferreira, E. Fortunato, “Single electron devices on nanocrystalline silicon”. 3rd Brazil MRS meeting, Symposium A: "Nanostrucutre materials: synthesis, characterization and theory" (Foz Iguaçu, Brazil, 10-13 October 2004) AO39, p.28 of abstract proceedings. Oral
28. R. Martins, H. Águas, I. Ferreira, E. Fortunato and P. Rocca i Cabarrocas. “Characteristics of Large Area Polymorphous Silicon Films Deposited by PECVD at 27.12 MHz”. 9th Euroregional Workshop on Thin Silicon Devices, (Lisbon, Portugal, 19-21 February, 2003). Oral
29. E. Fortunato H. Águas, I. Ferreira, A. Marques, A. Gonçalves, V. Assunção and R. Martins. “ZnO:Ga thin film deposited on polymeric substrates”. 9th Euroregional Workshop on Thin Silicon Devices, (Lisbon, Portugal, 19-21 February, 2003). Oral
30. E. Fortunato, V. Assunção, A. Marques, A. Gonçalves, A. Viana, H. Águas, L. Pereira, I. Ferreira, R. Martins. “Dependence of the morphology of gallium zinc oxide thin films as a function of deposition pressure”. Materiais 2003, Symp. MO1.03 (Lisboa, Portugal, 14-16 April, 2003). Oral
31. E. Fortunato, A. Marques, A. Gonçalves, H. Águas, L. Pereira, I. Ferreira, R. Martins. “Effect of nitrogen incorporation in zinc oxide thin films produced by rf magnetron sputtering”. Materiais 2003, Symp. MO1.14 (Lisboa, Portugal, 14-16 April, 2003). Oral.
32. R. Martins, H. Águas, I. Ferreira, E. Fortunato, L. Raniero, P. Cabarrocas “Composition, structure and optical characteristics pm-Si films deposited by PECVD at 27.12 MHz”. Materiais 2003, Symp. TO1.27 (Lisboa, Portugal, 14-16 April, 2003). Oral.
33. L. Raniero, E. Fortunato, L. Pereira, I. Ferreira, H. Águas R. Martins. “Performances of a-Si:H films produced by continuous plasma process”. Materiais 2003, Symp. TO1.29 (Lisboa, Portugal, 14-16 April, 2003). Oral.
34. Ferreira I, H. Águas, L. Pereira, E. Fortunato, R. Martins. “Photodegradation a-Si:H produced by HWPA-CVD”. Materiais 2003, Symp. TO1.30 (Lisboa, Portugal, 14-16 April, 2003). Oral.
35. Ferreira I, E. Fortunato, R. Martins. “Ethanol vapour detector based in porous a-Si:H films produced by HW-CVD technique”. Materiais 2003, Symp. MO4.13 (Lisboa, Portugal, 14-16 April, 2003). Oral.

36. E. Fortunato, A. Gonçalves, V. Assunção, A. Marques, H. Águas, L. Pereira, I. Ferreira, R. Martins. "New developments in galium doped zinc oxide deposited on polymeric substrates by rf magnetron sputtering" EMRS, Symp. G/GI.04 (Strasbourg, France, 10-23 June, 2003). Oral.
37. Ferreira, E. Fortunato, R. Martins. "The position sensitive detector based in a-Si:H films produced on mylar substrates by hot-wire plasma assisted technique". EMRS, Symp. N-II.6 (Strasbourg, France, 10-23 June, 2003). Oral.
38. Ferreira, E. Fortunato, R. Martins. "Porous silicon films produced by HW-CVD technique used in ITO/iSi:H/metal structures for ethanol detectors". EMRS, Symp. N-VII.2 (Strasbourg, France, 10-23 June, 2003). Oral.
39. Ferreira, E. Fortunato, R. Martins. "Porous a-Si:H films produced by HW-CVD as ethanol vapour detector and primary fuel cell". Eurosensors XVII, Symp. I-VI.2, T3A5 (Guimarães, Portugal, 21-24 September, 2003) pp. 450. Oral
40. L. Raniero, L. Pereira, N. Martins, P. Canhola, S. Zhang, I. Ferreira, H. Águas, E. Fortunato, R. Martins. "Characterization of DOS of polymorphous silicon films produced at 13.56 MHz and 27.12 MHz using CPM, PDS and SCL technioques". 20th ICAMS, (Campos de Jordão, SP Brasil, 25-29 August 2003) Mo-C1/1. Oral.

POSTER COMMUNICATIONS

1. R. Prabakaran, T. Monteiro, M. Peres, F.M. Braz Fernandes, E. Fortunato, R. Martins and I. Ferreira, Photoluminescence investigations of ZnO films coated porous silicon using rf magnetron Sputtering for optoelectronic device application - Poster
2. R. Prabakaran, E. Fortunato, R. Martins and I. Ferreira, Visible light emission from nanostructured SiCN films produced by HWCVD technique - Poster
3. R. Prabakaran, E. Fortunato, R. Martins and I. Ferreira, Nanoporous silicon to ozone and UV detection - Poster
4. R. Prabakaran, E. Fortunato, R. Martins and I. Ferreira, Fabrication and characterization of hybrid solar cells based on copper phthalocyanine/porous silicon - poster
5. L. Raniero, I. Ferreira, H. Águas, S. Zhang, E. Fortunato and R. Martins. "Study of a-SiC:H buffer layer on nc-Si/a-Si:H solar cells deposited by PECVD technique". IEEE 31st Photovoltaic Specialists Conference and Exhibition, Orlando, USA, January, 3-7, 2005. Poster.
6. Ferreira I, E. Fortunato, P. Vilarinho, R. Martins, "Silicon carbide obtained by HWCVD technique". TO1 P.88, p.135. Materiais 2005, III IMS, Aveiro 20-23 March 2005. Poster.
7. L. Raniero, E. Fortunato, A. Gonçalves, I. Ferreira, A. Pimentel, S. Zang, R. Martins, "Hydrogen plasma influence on electrical and optical properties of ZnO:In transparent conductive oxides". TO1 P.95, p.138. Materiais 2005, III IMS, Aveiro 20-23 March 2005. Poster.
8. S. Zhang, L. Raniero, E. Fortunato, L. Pereira, H. Águas, I. Ferreira and R. Martins. "Amorphous silicon based p-i-n structure for color sensor". A9.5 (poster), p. 62. MRS, Spring Meeting, Symposium A, S. Francisco (USA), March 28-April 1 2005. Poster.
9. L. Raniero, A. Gonçalves, A. Pimentel, I. Ferreira, S. Zhang, L. Pereira, H. Águas, E. Fortunato and R. Martins. "Influence of Hydrogen Plasma on electrical and optical properties of transparent conductive oxides". A21.10 (poster), p. 66. MRS, Spring Meeting, Symposium A, S. Francisco, (USA)March 28-April 1 2005. Poster.~
10. L. Raniero, I. Ferreira, H. Águas, S. Zhang, E. Fortunato and R. Martins. "nc-Si/a-Si:H Solar Cells Deposited by Plasma enhanced Chemical Vapour deposition Technique at 27.12 MHz". F/PI.06, p. F-4/21. EMRS, Spring Meeting, Symposium F, Strasbourg (França), 31- June 3, 2005. Poster.

11. S. Zhang, X. Liao, L. Raniero, E. Fortunato, Y. Xu, G. Kong, H. Águas, I. Ferreira and R. Martins. "Silicon Thin films Prepared in the Transition Region and their use in Solar Cells". F/PI.10, p. F-4/21. EMRS, Spring Meeting, Symposium F, Strasbourg (França), 31- June 3, 2005. Poster.
12. N. Martins, P. Canhola, L. Raniero, S. Zhang, M. Quintela, E. Fortunato, I. Ferreira and R. Martins. "Performances of an-in-line PECVD System Used to Produce High Efficiency Polymorphous/Nanocrystalline Silicon Solar Cells". F/PII.03, p. F-9/21. EMRS, Spring Meeting, Symposium F, Strasbourg (França), 31- June 3, 2005. Poster.
13. Ferreira I., L. Raniero, E. Fortunato and R. Martins. "Electrical Properties of Amorphous and nanocrystalline Hydrogenated silicon Films obtained by Impedance spectroscopy". F/PIII.04, p. F-16/21. EMRS, Spring Meeting, Symposium F, Strasbourg (França), 31- June 3, 2005. Poster.
14. J. Contreras, I. Ferreira, D. Costa, S. Pereira, H. Águas, C. Baptista, E. Fortunato, R. Martins, R. Wierzbiki, H. Heerlein. "Amorphous Silicon Position Sensitive Detectors Applied to Micropositioning". TP4.12, p. 176, ICANS 21, Lisbon (Portugal), 4-9 September, 2005. Poster.
15. S. Zhang, L. Pereira, Z. Hu, L. Raniero, E. Fortunato, I. Ferreira, A. Pimentel and R. Martins. "Characterization of Nanocrystalline Silicon Carbide Films". ThP1.8, p. 288, ICANS 21, Lisbon (Portugal), 4-9 September, 2005. Poster.
16. . Martins, P. Barquinha, L. Pereira, A. Pimentel, P. Almeida, I. Ferreira, E. Fortunato. "Electron Transport in Amorphous Indium Zinc Oxide Films". ThP2.30, p. 328, ICANS 21, Lisbon (Portugal), 4-9 September, 2005. Poster.
17. L. Raniero, E. Fortunato, I. Ferreira and R. Martins. "Study of Losses on Nanostructured Silicon Solar Cells by Spectroscopic Impedance techniques". ThP4.9, p. 394, ICANS 21, Lisbon (Portugal), 4-9 September, 2005. Poster.
18. L. Raniero, H. Águas, I. Ferreira, L. Pereira, E. Fortunato and R. Martins. "Solar Cells Enhanced by Nan
19. R. Martins, D. Costa, H. Águas, F. Soares, A. Marques, I. Ferreira, P. Borges, E. Fortunato. "Detection limits of A Linear Array Position Sensitive Detector based on NIP a-Si:H structures".MRS, Spring Meeting, Symposium A, Amorphous and Nanocrystalline Silicon, Science and Technology, 2004 (S. Francisco, 12-16 April, 2004). Poster.
20. R. Martins, E. Fortunato, I. Ferreira, H. Águas, L. Raniero, S. Zang,. "Dynamic Characteristics of a 32 a-Si:H Position Sensitive Linear Array". MRS, Spring Meeting, Symposium A, Amorphous and Nanocrystalline Silicon, Science and Technology, S. Francisco, EUA, 12-16 Abril de 2004, A4.45. Poster.
21. S. Zang, X. Liao, L. Raniero, E. Fortunato, Z. Hu, X. Zeng, L. Pereira, I. Ferreira, H. Águas, R. Martins. "The characterization of the silicon carbide thin films and their use in colour sensors" Int. Conf. on the Physics, Chemistry and Engineering of Solar Cells (SCELL-2004), 13-15 Maio de 2004, Badajoz, Espanha. Poster.
22. E. Fortunato, A. Pimentel, L. Pereira, A. Gonçalves, H. Águas, I. Ferreira, R. Martins. "Microscopic Analysis of ultra-violet photoconductivity in ZnO films deposited by rf magnetron sputtering". EMRS, Symp. D-PI.05 (Strasbourg, France, 24-28 May, 2004). Poster.
23. L. Raniero, N. Martins, P. Canhola, S. Pereira, I. Ferreira, E. Fortunato, R. Martins. "Study of spectral response of large area amorphous silicon solar cells". EMRS, Symp. -G/PI.31 (Strasbourg, France, 24-28 May, 2004). Poster
24. L. Raniero, I. Ferreira, N. Martins, P. Canhola, H. Águas, Shibin Zhang, E. Fortunato and R. Martins. "Application on Solar Cells Amorphous Silicon with Incorporated Nanoparticles Produced by Plasma Enhanced Chemical Vapour Deposition Technique at 27.12 MHz". 8th International Conference on Polycrystalline Semiconductors 2004 - September 5-10, 2004 - University of Potsdam, Germany (poster, P2.21). Poster.

25. Ferreira I, E. Fortunato, R. Martins.“ Microcrystalline Silicon Films Obtained by Hot wire Plasma Assisted –Chemical Vapour Deposition”. 8th International Conference on Polycrystalline Semiconductors 2004 - September 5-10, 2004 - University of Potsdam, Germany (poster, P1.22). Poster.
26. Pimentel, E. Fortunato, A. Gonçalves, A. Marques, H. Águas, L. Pereira, I. Ferreira, R. Martins. .“Polycrystalline Zinc Oxide to be used in Transparent Electronic Devices”. 8th International Conference on Polycrystalline Semiconductors 2004 - September 5-10, 2004 - University of Potsdam, Germany (poster, P2.11). Poster.
27. E. Fortunato H. Águas, I. Ferreira, A. Marques, A. Gonçalves, V. Assunção and R. Martins. “New challenges on galium doped zinc oxide films prepared by rf magnetron sputtering”. 9th Euroregional Workshop on Thin Silicon Devices, (Lisbon, Portugal, 19-21 February, 2003). Poster.
28. R. Martins, H. Águas, I. Ferreira, L. Raniero, E. Fortunato, P. Rocca i Cabarrocas, N. Martins, L. Boufendi. “Plasma control of polymorphous silicon films deposited by PECVD at 27.12 MHz”. 9th Euroregional Workshop on Thin Silicon Devices, (Lisbon, Portugal, 19-21 February, 2003). Poster
29. E. Fortunato, A. Gonçalves, A. Marques, L. Tomás, E. Ferreira, I. Ferreira, R. Martins, A. Viana, J. Bela, J. P. Borges. “Correlation between the electrical and optical properties presented by WO3 prepared by rf magnetron sputtering”. Materiais 2003, Symp. P1.15 (Lisboa, Portugal, 14-16 April, 2003). Poster.
30. E. Fortunato, V. Assunção, A. Marques, A. Gonçalves, H. Águas, L. Pereira, I. Ferreira, F. Fernandes, R. J. Silva, R. Martins. “GZO thin films produced by rf sputtering at room temperature: effect of the power density”. Materiais 2003, Symp. P1.16 (Lisboa, Portugal, 14-16 April, 2003). Poster.
31. L. Raniero, E. Fortunato, L. Pereira, I. Ferreira, H. Águas, R. Martins. “Intrinsic amorphous silicon films deposited by a continous method”. EMRS, Symp. D/PIII.06 (Strasbourg, France, 10-13 June, 2003). Poster
32. Ferreira, E. Fortunato, R. Martins. “Properties of Si:H nanocrystalline undoped and doped films produced by HWPA-CVD technique”. EMRS, Symp. D/PIII.41 (Strasbourg, France, 10-13 June, 2003). Poster.
33. R. Martins, H. Águas, I. Ferreira, L. Raniero, L. Pereira, E. Fortunato, P. Roca i Cabarroca, N. Martins and L. Boufendi. “Growth of polymorphous silicon films deposited by PECVD at 27.12 MHz”. EMRS, Symp. F/PI.07 (Strasbourg, France, 10-13 June, 2003). Poster
34. Ferreira, E. Fortunato, R. Martins. “Flexible position sensitive detector based on pin a-Si:H structures produced by PAHW-CVD”. Eurosensors XVII, Symp. I, WP72 (Guimarães, Portugal, 21-24 September, 2003) pp. 648. Poster
35. Ferreira, E. Caetano, L. Pereira, E. Fortunato, P. Vilarinho, R. Martins. “Characterization of DOS of polymorphous silicon films produced at 13.56 MHz and 27.12 MHz using CPM, PDS and SCL technioques”. 20th ICAMS, (Campos de Jordão, SP Brasil, 25-29 August 2003) PTu-5/10. Poster
36. S. Zhang, L. Raniero, L. Pereira, N. Martins, P. Canhola, I. Ferreira, H. Águas, E. Fortunato, R. Martins. “The characterization of silicon carbide thin films prepared by VHF PECVD technology”. 20th ICAMS, (Campos de Jordão, SP Brasil, 25-29 August 2003) PTh-5/8. Poster
37. R. Martins, L. Raniero, H. Águas, F. Soares, A. Marques, I. Ferreira, E. Fortunato. “Detection limits of a linear array position sensitive detector based on nip and MIS a-Si:H structures”. 20th ICAMS, (Campos de Jordão, SP Brasil, 25-29 August 2003) PTh-8/7. Poster
38. E. Fortunato, G. Lavareda, A. Marques, A. Gonçalves, A. Pimentel, L. Pereira, C. Nunes de Carvalho, H. Águas, I. Ferreira, R. Martins. “Zinc oxide thin film transistor produced at room temperature”. 20th ICAMS, (Campos de Jordão, SP Brasil, 25-29 August 2003) PTh-8/9. Poster.
39. L. Kholkin, R. Martins H. Águas, I. Ferreira, V. Silva, O. A. Smirnova, M. E. V. Costa, P. M. Vilarinho, E. Fortunato and J.L. Baptista. “Ferroelectric/ Amorphous Si MIS structures for Memory Applications”.

International Joint Conference on the Applications of Ferroelectrics, IFFF 2002, May 28- June 1, 2002, Nara-ken New Public Hall, Nara, Japan.

40. Ferreira, E. Fortunato, R. Martins. “From porous to compact films by changing the onset oh HW-CVD process”. EMRS, Symp. K/PI.01 (Strasbourg, France, 17-22 June, 2002).
41. Ferreira, M.E.V. Costa, E. Fortunato, R. Martins. “Combining HW-CVD and PECVD techniques to produce a/µc-Si:H films”. EMRS, Symp. K/PI.02 (Strasbourg, France, 17-22 June, 2002).

ANNEX 2 - COMPLETE LIST OF PROJECTS

SUMMARY OF THE INVOLVEMENT IN PAST PROJECTS

Type	Title	Duration	Partner	Financed by	Budget (€)
As Project Coordinator					
Industrial	NANOXIDES-"New Nanoxides Composites to produce targets for passive and actives applications in Opto-Micro-Nano-electronics"	2009-2011	INNOVNANO, CENIMAT	QREN Nº 3454	393 328
	NanoSi-PVCells - "Development of photovoltaic devices based on nanostructured silicon"	2009-2011	SOLARPLUS, CENIMAT	QREN Nº 5610	219 385
Basic Research	BIONANOMINE - Bio-synthesis of nanosized semiconductors using mine wastes as material sources and environmentally friendly applications	2012-2014	CENIMAT, FCUL, UALg	PTDC/AAG-TEC/2721/2012	25 000
	NanoTox-"Integrated evaluation of Nanomaterials: Determination and characterization of the environmental toxicology"	2010-2012	LNEG; FCT-UNL (CENIMAT*+DQ); HCC (Curry Cabral Hospital); IMAR	PTDC/CTM/09 9446/2008	48 890
	"Óxidos multifuncionais: nova aproximação à integração a baixa temperatura de óxidos semicondutores como filmes finos activos e passivos na nova geração de sistemas electrónicos – MONALISA"	2007-2009	CEMOP/UNINOVA; CENIMAT and CEOT (U. Algarve)	PTDC/CTM/73 943/2006	124 790
EU	Nanostructured thermoelectric systems for green transport & energy efficient applications-NANOTEG; (Responsible for project coordination at UNINOVA partner)	2011-2014	Thales Avionics SA, CNRS, LITEN, CEA, Micropelt Germany, Panco Germany, ICN Spain, CIDETE Spain, CRF Italy, UNINOVA,Portugal	ENIAC-2010-1	300 000
	"Advanced Handling and Assembly in Microtechnology-ASSEMIC	2003-2007	U. Viena (AT) coordenador; FSRM (CH); ARC (DE); IMT (RO); WUT (PL); UNINOVA (PT); AmiR (DE); Robotiker (SE); FORTH-HELLAS (GR); Medplant Genetics + Proteomica (SE); RAL-CCLRC (UK); Fraunhofer Institut für Lasertechnik – ILT (DE); SSSA (IT); Nascatec (DE).	6th UE programme, Marie Curie Actions: Research Training Networks, proposal nº 504826	285 000
Ind. contract	"Tests and validation of amorphous silicon solar cells"	2007-2008	CENIMAT-SOLARPLUS	Solar Plus	187 500
Total					**1 583893**

Type	Title	Duration	Partner	Financed by	Budget (€)
As Researcher					
International	"Materials Engineering and Physics of Quasimorphous Silicon Thin Films for its Application in Large Area Electronics".	2002-2006	CEMOP/ UNINOVA (coordinator), CENIMAT, Physics Dept of Syracuse University, USA.	FLAD (projecto 85/02)	165 000
Industrial	SolarTiles	2009-2011	Dominó SA;J. Coelho da Silva, SA; CTCV; INETI -; CENIMAT/FCT/UNL - Centro Viris, Natura e Ambiente SA	QREN Nº 3380	190 452
	"YInvisible – YTshirt-Têxtil"	2006-2008	YDreams; FCT/DQ; FCT – DCM/CENIMAT; Fábricas de Malhas Filobranca, S.A..Total	AdI/Ideia/2006	85 837
	"YInvisible – Boards"	2006-2008	YDreams; FCT – DQ; FCT – DCM/CENIMAT; Bi-Silque SA	AdI/Ideia/2006	126 109
	"YInvisible – Paper"	2006-2008	YDreams; FCT-DQ; FCT-DCM/CENIMAT Renov, Almonda, S.A. Total.	AdI/Ideia/2006	121 883
	"Development of Infra-Red detectors based on crystalline silicon technology- IRS".	2003-2007	UNINOVA/CEMOP (coordinador) + CENIMAT+CSP	POE, ref. 03/00198.	471 209
	"1024 array of linear position sensors for optical camera inspections -SENSIT"	2003-2007	UNINOVA/CEMOP (coordinador), CENIMAT and Tekelec.	POE, ref. 03/00197.	525 000
	"Solid State Time Meter – METES"	2002-2005	Tekelec (coordinator), CENIMAT and UNINOVA/CEMOP.	POSI/6250-2002/2005	195 600
Basic Research	Transitores de filme fino electrocromicos para aplicação em janelas inteligentes-ELECTRA	2010-2012	CEMOP/Uninova; FCT/UNL	PTDC/CTM/099124/2008	90 810
	"Transparent Thin Film Transistors based on ZnO for flexible display applications".	2006-2008	CENIMAT (coordinator), CEMOP	POCTI/CTM/55942/2004	79 500
	Integrated Memory made of paper using thin film transistors with channel of oxides - IMPACT	2010-2012	CEMOP/UNINOVA , FCT/UNL	PTDC/CTM/103465/2008	97 164
	Potable platform of nanobiosensors for sensible for multi sample blood analysis - BloodFET	2010-2012	CEMOP/UNINOVA , FCT/UNL	PTDC/SAU-BEB/098125/2008	98 356
	Nanobiodetection based in systems formed by optical nano-sensors formed by gold nanoparticles: NANOBIOS	2008-2010	CEMOP/UNINOVA , FCT/UNL	PTDC/FIS/74274/2006	95 850
	New advanced integrated systems of optical nano-sensors for Nanobiodetection-NANOSEN	2008-2010	CEMOP/UNINOVA , FCT/UNL	PTDC/EEA-ELC/74236/2006	45 340
	"Self-sustained intelligent windows based on photo-electrochromic devices"	2005-2007	CENIMAT (coord.), CEMOP, U.M. (Dept Física).	PTDC/CTM/099124/2008	45 000
	"Development of transparent p-type oxide semiconductors: from processing to device applications".	2005-2007	CENIMAT (coord.), CEMOP, U. Aveiro, ITN. Cenimat	POCTI/CTM/55945/2004	32 000
	"Transparent Conductive Oxides for Optoelectronic and Gas sensor applications"	2002-2006	CENIMAT (coord.) e CEMOP	POCTI/CTM/38924/2001	63 500
	"3D Position Sensitive Sensors-POSINSPEC"	2001-2005	Tekelec (coordinator), CENIMAT and UNINOVA/CEMOP.	POCTI/6207	165 000

	"A new flexible position angular sensor to be integrated in micromechanical devices"	2001-2005	CENIMAT (coord.) and CEMOP.	POCTI/1999/ESE/35578	85 000
	"New amorphous silicon based materials used in novel flexible position sensors"	2000-2005	CENIMAT (coord.) and CEMOP.	POCTI/1999/CTM/35440.	69 000
	"Intelligent Colour Sensors"	2002-2003	CENIMAT and UNINOVA/CEMOP (coord.).	POCTI/CTM/37344/2001	115 000
	"New Technologies for the production of solar cells-UNISOL"	1999-2002	CENIMAT e UNINOVA/CEMOP (coordinator).	PRAXIS/C/CTM/12094/1998,	47 500
	"Autonomous Printed Paper products for functional Labels and Electronics, APPLE"	2010-2013	Uninova/CEMOP/CENIMAT, PT; VTT (FI); Varta (DE); Commissariat à l'Energie Atomique, F; Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek, NL; Polypore, F; ViTechnology (Bl); RG Plastiques, F; Felix-Schoeller (DE); JoutsenPaino (FI); Reynders Etiketten Polska (Pl	FP7-NMP-2010-SME-4, Proposal No:262782-2	344148
	Printable Organic-Inorganic Transparent Semiconductor Devices, POINTS"	2010-2013	Fraunhofer Gesellschaft zur Foerderung der angewandten Forschung, D; CENIMAT/FCTUNL, PT; University of Cambridge UCAM, UK; Multivalent Multivalent, UK; Promethean Particles Promethean, UK; Stora Enso Oyj Stora Enso, FI; 8 Bayer Technology Services, GmbH BTS DE; University Dunarea de Jos of Galati UDJG, RO	FP7-NMP-2010-SMALL-4	562 200
	"Smart electrochromic active matrix components for stand-alone multifunctional devices, SMART-EC"..		Politecnico di Torino, IT; ACREO AB, SE; Rockwood Pigments Ltd, UK; Bundesdruckerei GmbH, DE; Commissariat à l'Energie Atomique etaux Energies Alternatives, for its LITEN laboratory, F; PLASTIQUES RG, F; Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.V., DE;SOLEMS SA, F; ViTechnology, F; G24 Innovations Ltd; UK; Bioage S.r.l., IT	FP7-ICT-2009.3.9: Microsystems and smart miniaturized systems, grant nº 258203	832 500
	"Oxide Materials Towards a Matured Post-silicon Electronics Era, Orama",		Foundation for Research and Techology Hellas, Gr; Institut Jožef Stefan, SL: Philips Electronics UK LTD; Philips Electronics Nederland B.V.NK, NL; OSRAM Opto Semiconductors GmbH, DE; Consiglio Nazionale delle Ricerche, IT; Justus-Liebig-Universitaet Giessen, DE; University College London, UK; University of Cambridge, UK; Eberhard Karls Universitaet Tuebingen, DE; Steinbeis GmbH & Co. KG fuer Technologietransfer, DE; Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek – TNO, NL; Centro Ricerche Fiat SCPA, IT	FP7-NMP-2009-Large-3, CP-IP 246334-2 7 2010	1 115 000
	"Multicomponent Oxides for Flexible and Transparent Electronics-MULTIFLEXIOXIDES"	2006-2009	Uninova (PT), (coordinator); Tyndall (IR); CENIMAT (PT); U. Barcelona (ES); HP (IR); FIAT (IT); J. Stefan Institute (SI).	FP6-2004-TI-4" – Proposal n° 032231 (2006/2009)	500 000
	"Development of new production techniques for highly efficient polymorphous solar cells- H-Alpha Solar"	2000-2004	U. Eindhoven/TUE, coordenador (NL); U. Orleans/GREMI (FR); CNRS/PICM (FR); UNINOVA/CEMOP (PT); ATECNIC/PORTSOL (PT); Balzers A. G./BPS (LI); Akzo Nobel Chemical b.v./ANC (NL).	Brite-EuRam, NNE5-1999-00133.	265 000
European					
	"Inspection of large soldered joints and optimisation of soldering process - LASOL"	1998-2003	AEG, coordenador (DE); JENOPTKIS (DE); FERBV (DE), Fraunhoffer Inst.	Brite-EuRam, BRE-CT97-4689	247 500

			(DE); NMRC (IRL); TEKELEC (PT); UNINOVA/CEMOP (PT).		
	"European Network on Amorphous-Silicon Device Technology-ASINET".	2000-2005	CIEMAT (ES), coordenador; ENEA (IT); U. Cranfield (UK); Pilkington (UK); U. Barcelona (ES); CNRS/PICM (FR); Akzo Nobel b.v./ANC (NL); CNR (IT); U. Stuttgart (DE); IST (PT); LAMEL (IT); U. Torino (IT); U. Patras (GR); U. Delft/TUE (NL); UNINOVA/CEMOP (PT); U. Cambridge (UK); U. Utrecht (NL); U. Roma (IT); TNO (NL).	Brite-EuRam, GTC1-2000-28040.	245 000

INDUSTRIAL PROJECTS - NATIONAL

1. **NANOXIDES-"New Nanoxides Composites to produce targets for passive and actives applications in Opto-Micro-Nano-electronics**"; **Objectives**: This project aims to develop new multicomposite oxides, environmental and human- been friendly for production ceramic targets based on ZnO and its doped and undoped composites, ex.ZnO/Al2O3 as well as other functional oxides such as TiO2, Al2O3 and Fe2O3, for active and passive thin films applications on Optoelectronic and Micro/Nano-electronic devices; **Financed by**: QREN Nº 3454; **Duration**: 2009-2011; **Partners**: INNOVNANO, CENIMAT; **Budget**: **393 328€** ; **SR**: Elvira Fortunato and **Isabel Ferreira (coordination)**

2. **NanoSi-PVCells -"Development of photovoltaic devices based on nanostructured silicon"**; **Objectives**: To develop photovoltaic solar modules and production processes for: - Large area / low cost innovative nanostructured Si pin devices increasing efficiencies from 7 to above 10%; -Hybrid junctions to take efficiencies further and gain other product characteristics like transparency; -Flexible PV: **Financed by**: QREN Nº 5610; **Duration**: 2009-2011; **Partners**: SOLARPLUS, CENIMAT; **Budget**: 219 385€ ; **SR**: Rodrigo Martins and **Isabel Ferreira (coordination)**

3. **SolarTiles - Development of PV systems in ceramics"; Objectives:** The main objective is to develop at a laboratorial scale integrated functional prototypes of high efficiency for building applications, by depositing photovoltaic thin films. **Financed by**: QREN Nº 3380; **Duration**: 2009-2011; **Partners**: Dominó-Indústrias Cerâmicas SA; J. Coelho da Silva, SA; ADENE - Agência para a Energia; CTCV - Centro Tecnológico da Cerâmica e do Vidro; INETI - Instituto Nacional de Engenharia, Tecnologia e Inovação; FCT-UNL-CENIMAT; Universidade do Minho; De Viris,Natura e Ambiente S.A; **Budget**: 190 452€ ; **SR**: Rodrigo Martins and **Isabel Ferreira (coordination)**

4. **"YInvisible – Paper"; Objective**: The aim of this project is to apply the methodology of reality computer to the cellulose based paper by using electrochromic and other materials used in transparent electronics aiming to functionalize it by giving to it electronic functions such as to implant in it transparent electrodes and so making its use suitable as substrates or supplying to it intelligent functions; **Financed by**: AdI/Ideia/2006; **Duration:** 2006 to 2008;**Partners:** YDreams; FCT – Departamento de Química; FCT – Departamento de Materiais Renova – Fábrica do papel do Almonda, S.A. Total.; **Budget: 121,883.35 €; SR:** E. Fortunato and R. Martins

5. **"YInvisible – Boards"; Objective**: The aim of this project is to develop interactive boards using invisible inks based on electrochromic and thermochromic materials, well supported by adequate transparent electronic components to make them suitable to behave as intelligent passive displays that may wireless interact or to be controlled; **Financed by:** AdI/Ideia/2006; **Duration:** 2006 to 2008; **Partners:** YDreams; FCT – Departamento de Química; FCT – Departamento de Materiais; Bi-Silque, Artigos para Casa e Escritório, S.A.; **Budget: 126,109.60; SR:** E. Fortunato and R. Martins

6. **"YInvisible – YTshirt-Têxtil"; Objective:** The aim of this project is to generate competences in the creation of intelligent cloths by using intelligent chemical materials such as electrochromics deposited on their surfaces. This may be the start up of novel flexible analogic displays able to be printed in a T-shirt. These new displays aims to wireless inter-act with the user or an external control unit, for instance to prevent robberies or to certify

their authenticity; **Financed by:** AdI/Ideia/2006; **Duration:** 2006 to 2008; **Partners:** YDreams; FCT – Departamento de Química; FCT – Departamento de Materiais; Fábricas de Malhas Filobranca, S.A.; **Budget: 85,837.65€; SR:** E. Fortunato and R. Martins

7. **"Development of Infra-Red detectors based on crystalline silicon technology- IRS"; Objectives**: To develop the process aiming to produce Infra-red detectors based on the crystalline silicon technology able to be used in optical sensor applications, such as control units or target aiming applications where the devices is simple to the shot of a laser pulse; **Financed by:** POE, B3, medida 3.1 (2002/2005), ref. 03/00198; **Duration:** 2003 to 2007; **Partners:** UNINOVA/CEMOP (**coordinator**) + CENIMAT+CSP; **Budget: 471209.13 €; SR: E. Fortunato (coordinator) and R. Martins**
8. **"1024 array of linear position sensors for optical camera inspections -SENSIT", Objectives**: The aim of this project is to develop 256 line integrated position sensor and the corresponding peripheral electronics that make this sensor suitable to be integrated in inspection camera systems. The project innovation and high risk lies in the production of the integrated array of linear position sensors based on the amorphous silicon technology, making the inspection camera able to supply a continues information on real time, differently from what happens with CCD based inspection cameras. The data up to know achieved make this sensor and the integrated board to which the sensor is connected, unique worldwide!; **Financed by:** POE, acção B3, medida 3.1 (2004/2007), ref. 03/00197; **Duration:** 2003 to 2007; **Partners**: UNINOVA/CEMOP (coordinador), CENIMAT and Tekelec; **Budget**: 525000€; **SR:** R. Martins (coordinator) and E. Fortunato.
9. **"3D Position Sensitive Sensors- POSINSPEC"; Objectives**: To develop and to integrate in a control demonstrator unit based on CCD devices a 32 to 64 integrated position sensitive detector array to detect malfunction on soldering components and to determine spatial profiles on components, in real time. **Financed by**: POCTI/6207 Invest. em consórcio 2002/2006; **Duration:** Out. 2001 a Dez. 2005; **Partners:** Tekelec (coordinador), CENIMAT and UNINOVA/CEMOP; **Budget**: 165000 €; **SR: R.** Martins (coordinator) and E. Fortunato.
10. **"Solid State Time Meter – METES"; Objectives:** This project aims to develop a solid state timer able to monitor the life time of a device or equipment with which it is connected. The device to be developed will substitute a product only fabricate worldwide by Tekelec, designated by INDACHRON that is in the end of its life, essentially due to environment restrictions since INDACHRON is a device mercury based and since it is highly sensitive to vibrations and thermal variations. The device to be developed is based in the detection and accumulation charge principle on structures with electrochromic materials (colour changes) and how this is related with the time, able to satisfy the following requirements: ecological compatible and measurements vibration's and temperature independent (solid state); to allow the visualization of the lifetime of the device with and without energy applied; to be mechanical and electrical compatible with the actual product; able to restore the initial state; precision better than 5% over the full scale of the device; to have costs below 2 Euros; **Financed by:** POSI/6250- 2002/2005.
11. **Duration:** January 2002 to December 2005; **Partners:** Tekelec (co-coordinator), CENIMAT and UNINOVA/CEMOP.
    Budget: 195600 €; **SR:** E. Fortunato (coordinator) and R. Martins.

BASIC RESEARCH - NATIONAL

1. BIONANOMINE, Bio-synthesis of nanosized semiconductors using mine wastes as material sources and environmentally friendly applications. **Objectives**: The production of nanomaterials using by-products of an environmental remediation process is a welcome approach to convert potentially harmful wastes into useful products for innovative applications. **Financed by** PTDC/AAG-TEC/2721/2012; **Duration** jan 2012 to dez 2014; **Partners** CENIMAT, FCUL, UALg; **Budget**: 25000€ to FCT-UNL; Isabel Ferreira coordinator at CENIMAT.

2. NanoTox-"Integrated evaluation of Nanomaterials: Determination and characterization of the environmental toxicology"; Objectives: Evaluation of the toxicity of TiO_2 nanoaprticles in fishes and algues. **Financed b**y PTDC/CTM/09/9446/2008; **Duration** jan 2010 to dez 2012; **Partners** LNEG; FCT-UNL, HCC; IMAR; **Budget**: 48890€ to FCT-UNL; Isabel Ferreira coordinator at CENIMAT.
3. "MONALISA"- Óxidos multifuncionais: nova aproximação à integração a baixa temperatura de óxidos semicondutores como filmes finos activos e passivos na nova geração de sistemas electrónicos; **Objectives**: The aim of this project is to develop new multifunctional semiconduting oxide based materials produced at low temperatures acting as active or passive layers for optoelectronic thin film devices application; **Financed by:** PTDC/CTM/73943/2006; **Duration:** Jan 2007 a Dez. 20010; **Partners:** CEMOP/UNINOVA; CENIMAT and CEOT (U. Algarve); **Budget: 150,000.0 €; SR: Isabel Ferreira (coordinator)** and Elvira Fortunato
4. **"Integrated Memory made of paper using thin film transistors with channel of oxides - IMPACT";** Objectives: Development of paper transistors and memories into the same substrate to produce paper logic electronic devices; **Financed by**: PTDC/CTM/103465/2008; Duration: 2010-2012; **Partners**: CEMOP/UNINOVA,FCT/UNL; **Budget**: 97 164€; SR: Rodrigo Martins and Elvira Fortunato
5. **Portable platform of nanobiosensors for sensible for multi sample blood analysis - BloodFET**; Objectives: Development of thin film transistors based in oxide semiconductors to detect changes in blood samples; **Financed by**: PTDC/SAU-BEB/098125/2008; Duration: 2010-2012; **Partners**: CEMOP/UNINOVA,FCT/UNL; **Budget**: **98 356€;** SR : Elvira Fortunato and Rodrigo Martins
6. **New advanced integrated systems of optical nano-sensors for Nanobiodetection-NANOSEN**; Objectives: Integration optical sensors based in amorphous silicon with micro fluidic for biosensor applications; **Financed by**: PTDC/EEA-ELC/74236/2006; Duration: 2010-2012; **Partners**: CEMOP/UNINOVA,FCT/UNL; **Budget**: **45 340€;** SR: Elvira Fortunato and Rodrigo Martins
7. **Nanobiodetection based in systems formed by optical nano-sensors formed by gold nanoparticles**: NANOBIOS; Objectives: Development of optical sensors able to detect changes in DNA marked with gold nanoparticles; **Financed by**: PTDC/FIS/74274/2006; Duration: 2008-2010; **Partners**: CEMOP/UNINOVA, FCT/UNL; **Budget**: 95 850**; SR**: Elvira Fortunato and Rodrigo Martins
8. **"Transparent Thin Film Transistors based on ZnO for flexible display applications"; Objectives**: The project aims the study, production and development of highly stable transparent thin film transistors TTFT fully based in ZnO films with different properties and/or including structures with high k-dielectrics, To reach this goal, several device configurations will be tested (top and bottom gate) as well as the use of different dielectrics (combinations of single or stacked HfO; TiO_2; Al_2O_3 layers), where special attention is given to interface engineering; **Financed by:** Project POCTI/CTM/55942/2004;**Duration:** January 2006 to December 2008; **Partners**: CENIMAT (**coordenador**), CEMOP. **Budget: 79500 €; SR:** R. Martins (coordinator) and E. Fortunato
9. **"Development of transparent p-type oxide semiconductors: from processing to device applications". Objectives**: The project aims the study, production and development of low cost conductive and transparent p-type ZnO thin films deposited by rf magnetron sputtering and its application to near UV optoelectronic devices. In order to achieve such goal the project has three main tasks: 1- Development of high quality ZnO thin films by rf magnetron sputtering; 2- Control and comparison of the p-type doping in two different ways: in situ - incorporation of the dopant during the growth (using nitrogen gas sources) and ex situ – nitrogen ion implantation; 3-Production and characterization of transparent UV detector and UV emitting diodes To reach these goals the proposed work plan has the following technical tasks: 1. Production, development and characterization of high quality undoped ZnO films; 2. Doping and structural characterization; 3. Electrical, optical and magnetic resonance characterization; 4. Production and characterization of pn junctions; 5. Management; **Financed by**: POCTI/CTM/55945/2004; **Duration:** January 2005 to December 2007; **Partners**: CENIMAT (**coordinator**), CEMOP, U. Aveiro, ITN. Cenimat; **Budget: 32000 €; SR:** E. Fortunato (coordinator)**.**
10. **"Self-sustained intelligent windows based on photo-electrochromic devices"; Objectives**: The main objective of this project is to develop an intelligent and self powered window to control de transmittance in intelligent buildings. The window will be based on electrochromic materials while the optical sensor will be based on a transparent amorphous silicon solar cell; **Financed by:** POCTI/CTM/48853/2002 (2004/2007); **Duration:** January 2005 to December 2007; **Parctners**: CENIMAT (**coordinator**), CEMOP, U.M. (Dept Física); **Budget: 45000 €; SR**: E. Fortunato (coordinator), R. Martins.

11. **Intelligent Colour Sensors**"; **Objectives:** The objective of this project is to develop a smart colour sensor with one or two terminal where the colour sensor and its discrimination fully depend on the type of bias and its magnitude used. The type of structures proposed to be developed are [TCO/MISsic/TCO/MISgraded/MISsi/TCO] and TCO/MISsic/ pinip/TCO, based on polymorphous/microcrystalline silicon and their alloys, produced by PECVD technique using a 27.2 MHz rf power; **Financed by:** POCTI/CTM/37344/2001; **Duration:** Sept. 2002 to Sept 2002; **Partners:** CENIMAT and UNINOVA/CEMOP (**coordinator**); **Budget: 115000 €; SR:** R. Martins (coordinator) and **I. Ferreira.**
12. **"Transparent Conductive Oxides for Optoelectronic and Gas sensor applications"; Objectives:** The scope of this proposal is to produce transparent conductive oxide (TCO) layers for optoelectronic and gas sensor applications, reliable of low cost, able to match to different substrate shapes and geometries, mechanical resistant, deposited on polymeric substrates. That is, the deposition process has to be taken place at temperatures below 100ºC, not compatible with the existing process methods that require substrate temperatures above 200ºC. For optoelectronic applications, namely solar cells and optical sensors, the aim is to produce TCO with transmittances >80% and sheet resistances < 20ohms/sqr., deposited on mylar. For gas sensor applications, the TCO should be highly resistive, in order to have sensitivity (SE) and selectivity (SL) to CH_4, the main component of the natural gas; **Financed by:** POCTI/CTM/38924/2001; **Duration:** Jan 2002 a Mar. 2006; **Parctners:** CENIMAT (**coordenador**) e CEMOP; **Budget: 63500€; SR:** E. Fortunato (coordinator) and R. Martins
13. **"A new flexible position angular sensor to be integrated in micromechanical devices"; Objectives:** The aim of this project is to integrate flexible large area position sensitive detector (PSD) based on amorphous silicon (a-Si:H) on micromechanical machines in order to control the angular position and velocity of a micromotor with a spatial precision better than one micrometer; **Financed by:** POCTI/1999/ESE/35578; **Duration:** January 2001 to December 2005; **Parctners:** CENIMAT (**coordenador**) and CEMOP; **Budget: 85000€; SR:** E. Fortunato (coordinator) and R. Martins
14. **"New amorphous silicon based materials used in novel flexible position sensors"; Objectives**: This project aims to develop a new flexible large area (10mm×40mm) position sensitive detector (PSD) based on amorphous silicon (a-Si:H) thin film technology. The sensor will be deposited onto an ultra thin polymer (polyimide foil) with thickness varying from 0.025 to 0.125m. The sensor structure (type pin and nip) will be deposited by rf plasma enhanced chemical vapour deposition (PECVD) and hot-wire techniques. The bottom electrode will be resistive tin oxide (SnO_2) deposited by spray pyrolysis or magnetron sputtering and the top metal contact by thermal/electron gun evaporation. The sensor radius of curvature will be 14 mm and able to perform a continuous control of a rotor with response times better than 100s and linearity better than 99%;**Financed by:** FCT, POCTI/1999/CTM/35440; **Duration:** Set. 2000 a Set. 2005; **Partners:** CENIMAT (**coordenador**) and CEMOP; **Budget: 69000€; SR:** E. Fortunato (coordinator) and R. Martins
15. **"New Technologies for the production of solar cells- UNISOL"; Objective**: The main objective of this project is to develop new thin silicon films for PV and other optoelectronic applications, aiming to reach a breakthrough on the actual state of art. This implies to prosecute two main routes: one to improve the actual state of practice and the other to innovate the basics of the actual thin film technology, through: (1) Nanostructured thin films; (2) to develop new nano/polycrystalline thin Si films through hot wire plasma assisted technique; (3) to produce pin ands SIS devices based on the novel materials; **Financed by**: PRAXIS/C/CTM/12094/1998, 1999/2004; **Duration:** Sept. 1999 to October 2002 and from October 2002 to Sept. 2004; P**artners**: CENIMAT e UNINOVA/CEMOP (coordenador); **Budget: 47500 €; SR:** R. Martins (coordinator) and **I. Ferreira**

INDUSTRIAL PROJECTS - INTERNATIONAL

1. "**Autonomous Printed Paper products for functional Labels and Electronics, APPLE**" FP7-NMP-2010-SME-4, Proposal No:262782-2 APPLE CP-TP. Coordinator: Centre Technique du Papier (F). Scientific coordinator: R. Martins and E. Fortunato. Co-coordinator: L. Pereira. Researchers: I. Ferreira, P. Barquinha. Partners: Uninova/CEMOP/CENIMAT, PT; VTT (FI); Varta (DE); Commissariat à l'Energie Atomique, F; Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek, NL; Polypore, F; ViTechnology (Bl); RG Plastiques, F; Felix-Schoeller (DE); JoutsenPaino (FI); Reynders Etiketten Polska (Pl). Budget to Campus FCT: 344,148.00€

2. "**Printable Organic-Inorganic Transparent Semiconductor Devices, POINTS**", FP7-NMP-2010-SMALL-4. Coordinator: VTT (FI). Co-coordinator: E. Fortunato. Researchers: L. Pereira, R. Martins, P. Barquinha, I. Ferreira. Partners: Fraunhofer Gesellschaft zur Foerderung der angewandten Forschung, D; CENIMAT/FCTUNL, PT; University of Cambridge UCAM, UK; Multivalent Multivalent, UK; Promethean Particles Promethean, UK; Stora Enso Oyj Stora Enso, FI; 8 Bayer Technology Services, GmbH BTS DE; University Dunarea de Jos of Galati UDJG, RO. Budget to Campus FCT: 562,200.00€.

3. "**Smart electrochromic active matrix components for stand-alone multifunctional devices, SMART-EC**". FP7-ICT-2009.3.9: Microsystems and smart miniaturized systems, grant nº 258203 Coordinator: CRF (IT); Research Responsible (CEMOP/CENIMAT, PT). Co-coordinator: R. Martins. Scientific coordinator: E. Fortunato. Responsible: L. Pereira. Researchers: I. Ferreira, H. Águas. Partners: Politecnico di Torino, IT; ACREO AB, SE; Rockwood Pigments Ltd, UK; Bundesdruckerei GmbH, DE; Commissariat à l'Energie Atomique et aux Energies Alternatives, for its LITEN laboratory, F; PLASTIQUES RG, F; Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.V., DE;SOLEMS SA, F; ViTechnology, F; G24 Innovations Ltd; UK; Bioage S.r.l., IT. Budget Campus FCT: 832,500.00 €.

4. "**Oxide Materials Towards a Matured Post-silicon Electronics Era, Orama**", FP7-NMP-2009-Large-3, CP-IP 246334-2 7 2010. Coordinator (Fruanhofer-D). Co-coordinator and scientific responsible: R. Martins. Responsibles: E. Fortunato and L. Pereira. Researchers: P. Barquinha, I. Ferreira. Partners: Foundation for Research and Techology Hellas, Gr; Institut Jožef Stefan, SL: Philips Electronics UK LTD; Philips Electronics Nederland B.V.NK, NL; OSRAM Opto Semiconductors GmbH, DE; Consiglio Nazionale delle Ricerche, IT; Justus-Liebig-Universitaet Giessen, DE; University College London, UK; University of Cambridge, UK; Eberhard Karls Universitaet Tuebingen, DE; Steinbeis GmbH & Co. KG fuer Technologietransfer, DE; Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek – TNO, NL; Centro Ricerche Fiat SCPA, IT; Bekaert Advanced Coatings NV, B. Budget Campus FCT:1,115,000.00 €.

5. **"Multicomponent Oxides for Flexible and Transparent Electronics-MULTIFLEXIOXIDES"; Objectives:** The overall project goal of MULTIFLEXIOXIDES is to develop tailored oxide thin films with radical electronic properties and the development of new non-fab processes for the fabrication of display backplanes on flexible substrate materials. This project will provide proof-of-concept and preliminary industrial validation of new routes to form flexible transparent displays at room temperature; **Financed by:** FP6-2004-TI-4" – Proposal n° 032231 (2006/2009); **Duration:** Sept 2006 a Dec 2009; **Partners:** Uninova (PT), (**coordinator)**; Tyndall (IR); CENIMAT (PT); U. Barcelona (ES); HP (IR); FIAT (IT); J. Stefan Institute (SI). **Duration**: Starting data September 1st, 2006 to end in December 2009; **Budget: 500000€; SR:** R. Martins (coordinator) and E. Fortunato

6. **"Advanced Handling and Assembly in Microtechnology- ASSEMIC"; Objectives:** The project has as objectives to hire formation and to develop new tools and systems for ultra-precision positioning accuracy (micro and nano range) with improved performance; to develop innovative tools for micro handling and assembly; to develop advanced control processes and strategies for micro-handling and –assembly; to develop a methodology for micro-handling and assembly in special applications and to address also industrial production issues and manufacturability of assembled MEMS; **Financed by:** 6th UE programme, Marie Curie Actions: Research Training Networks, proposal nº 504826; **Duration:** Jan. 2003 a Dec. 2007; **Partners:** U. Viena (AT) coordenador; FSRM (CH); ARC (DE); IMT (RO); WUT (PL); UNINOVA (PT); AmiR (DE); Robotiker (SE); FORTH-HELLAS (GR); Medplant Genetics + Proteomica (SE); RAL-CCLRC (UK); Fraunhofer Institut für Lasertechnik – ILT (DE); SSSA (IT); Nascatec (DE); **Budget: 285000 €; SR: I. Ferreira** and R. Martins

7. **"European Network on Amorphous-Silicon Device Technology-ASINET"; Objectives:** The present proposal is aimed at the creation of a European Network on Amorphous-Silicon Device Technology. The initiative has been inspired on the appreciation that although ... The network will have a positive impact on the European economic development, derived from the opportunity to put and keep in contact industrial groups having complementary points of view and RTD centres, all of them having in common their interest on a technology whose potential are enormous. Such an interaction will result in new RTD projects, new products and the technological progress of the European industry; **Financed by:** Brite-EuRam, GTC1-2000-28040; **Duration:** Jan. 2000 a Dec. 2005; **Partners:** CIEMAT (ES), coordenador; ENEA (IT); U. Cranfield (UK); Pilkington (UK); U. Barcelona (ES); CNRS/PICM (FR); Akzo Nobel b.v./ANC (NL); CNR (IT); U. Stuttgart (DE); IST (PT);

LAMEL (IT); U. Torino (IT); U. Patras (GR); U. Delft/TUE (NL); UNINOVA/CEMOP (PT); U. Cambridge (UK); U. Utrecht (NL); U. Roma (IT); TNO (NL); **Budget: 245000 €; SR:** R. Martins and E. Fortunato**.**

8. **"Development of new production techniques for highly efficient polymorphous solar cells- H-Alpha Solar"; Objectives:** The general aim of the project consists in the development of industrially applicable production techniques for solar cells using polymorphous silicon with stable efficiencies above 10%, exploring in-line batch as well as continuous roll-to-roll techniques, aiming to ultimately obtain a system cost of 1 Euro/Watt-peak (1Euro/Wp). The module manufacturing cost reduction aimed at will be reached by simultaneously increasing the photovoltaic efficiency, improving the production yield, increasing the feedstock utilisation efficiency, and decreasing the cost of ownership by enhancing the growth rate; **Financed by:** Brite-EuRam, NNE5-1999-00133.

9. **Duration:** April 2000 a July 2004; **Partners:** U. Eindhoven/TUE, coordenador (NL); U. Orleans/GREMI (FR); CNRS/PICM (FR); UNINOVA/CEMOP (PT); ATECNIC/PORTSOL (PT); Balzers A. G./BPS (LI); Akzo Nobel Chemical b.v./ANC (NL); **Budget: 265000 €; SR:** R. Martins and E. Fortunato.
10. 5. **"Inspection of large soldered joints and optimisation of soldering process - LASOL"; Objectives**: The main objective of this project is to develop tools able to monitor the performances and the geometry of large soldered joins. This will be performed by proper development of a system that includes optical sensors and the required software's for: gathering, reducing and filtering noisy measurement information; for reconstruction of geometric features from measurements; for detection and classification of abberating and faulty LSJ's; **Financed by:** Brite-EuRam, BRE-CT97-4689; **Duration:** Nov. 1998 a April 2003; **Partnerss:** AEG, coordenador (DE); JENOPTKIS (DE); FERBV (DE), Fraunhoffer Inst. (DE); NMRC (IRL); TEKELEC (PT); UNINOVA/CEMOP (PT).
Budget: 247500 €; **SR**: R. Martins and E. Fortunato.

BASIC RESEARCH -INTERNATIONAL

1. **"Materials Engineering and Physics of Quasimorphous Silicon Thin Films for its Application in Large Area Electronics"; Objectives:** This project aims to facilitate international cooperation between three laboratories involved in research on a form of thin-film silicon, which we term "quasimorphous." A material as having electronic properties significantly improved and defect metastability (the generation of dangling bond defects by light or other non-equilibrium excitation) reduced compared to those for hydrogenated amorphous silicon prepared under conventional deposition conditions, called –regime.; **Financed byo:** FLAD (projecto 85/02); **Duration:** Set,. 2002 a Dec 2005; **Partners:** CEMOP/ UNINOVA (**coordinator**), CENIMAT (Portugal), Physics Dept of Syracuse University, USA; **Budget: 165 000 €; SR:** R. Martins (coordinator) and **I. Ferreira.**