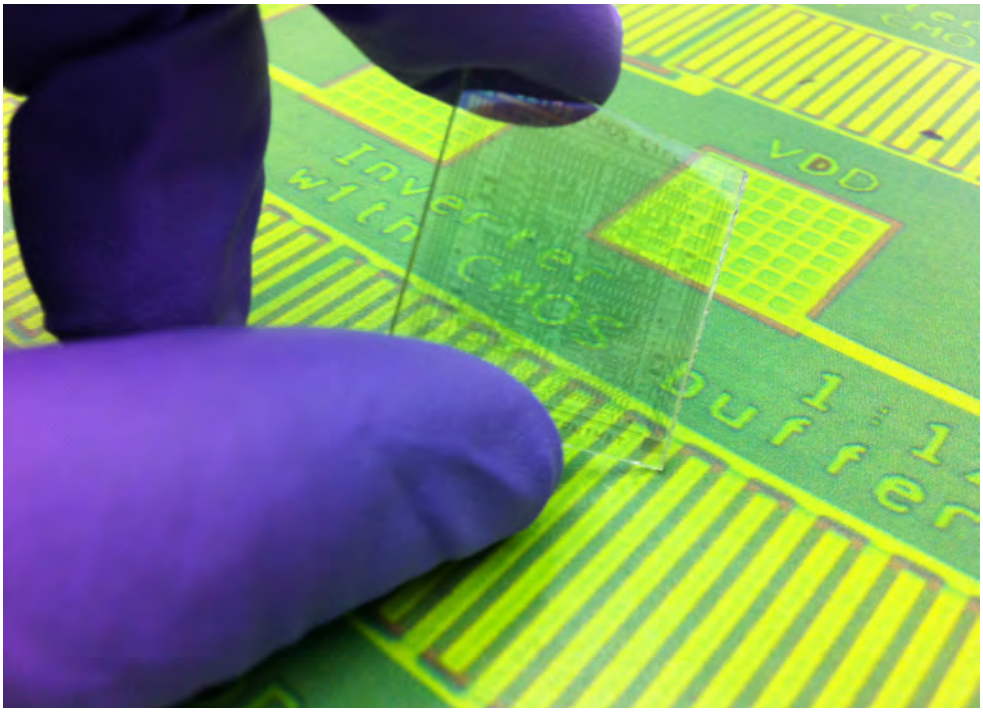
MIEMN

Mestrado Integrado em Engenharia
de Micro e Nanotecnologias



Master of Engineering
in Micro and Nanotechnologies, 2009-2014

Mestrado Integrado de Engenharia
de Micro e Nanotecnologias, 2009-2014

Departamento de Ciência dos Materiais
Faculdade de Ciências e Tecnologia
Universidade Nova de Lisboa

Contents

MIEMN

Mestrado Integrado em Engenharia de Micro e Nanotecnologias

Bem-vindos!

Em nome do Departamento de Ciência dos Materiais da Nova quero dar-vos as boas vindas e dizer-vos que estamos orgulhosos de termos os alunos que temos! A formação que escolheram é de excelência e relevante mundialmente.

Precisamos mais e mais de: nanotecnologias para reduzirmos a quantidade de materiais necessários para dispositivos e sistemas das tecnologias da informação e comunicação e biotecnologia, com funcionalidades excecionais; nanopartículas para aplicações de diagnóstico e terapia; nanomateriais e nano estruturas para aplicações energéticas; microtecnologias e microelectrónica para saber desenhar, integrar e implementar sistemas; do vosso sentido empreendedor!

A vossa formação será multidisciplinar, assente numa vertente comum sólida e outra flexível, que pode ser e deve ser desenhada por vós! Para tudo isto, contam com uma estrutura apoiada em três pilares fundamentais: excelência na formação e investigação; recursos laboratoriais extraordinários, de portas abertas; investigadores consagrados internacionalmente, docentes e não docentes, abertos a discutir as vossas ideias.

Bem-vindos à família!

Rodrigo Martins

Welcome!

On behalf of the Department of Materials Science, New University of Lisbon, I bid you a warm welcome and assure you that we are proud to have the students we have! The course that you have chosen is one of excellency and worldwide relevant.

We need more and more: nanotechnologies to reduce the amount of resources required to build devices and systems for information and communication technologies and biotechnology; materials with exceptional features, as cross cutting enablers of all knowing technologies, going from electronics to health applications; nanoparticles for diagnostic and therapeutic applications; nanomaterials and nanostructures for energy applications; microtechnologies and microelectronics to know how to draw, integrate and implement systems; of your entrepreneurship spirit!

Your training will be multidisciplinary, based on a common, predetermined strand, and a flexible strand, which can and should be designed by you! For all this, you can count on three basic pillars: excellence in education and research; extraordinary laboratory resources and an internationally recognized team of researchers, teachers and staff who are happy to discuss your ideas with you.

Welcome to the family!

Rodrigo Martins


Universidade
UNIVERSIDADE NOVA DE LISBOA
CAMPUS DE CAPARICA
FCT
FACULDADE DE
CIÊNCIAS E TECNOLOGIA

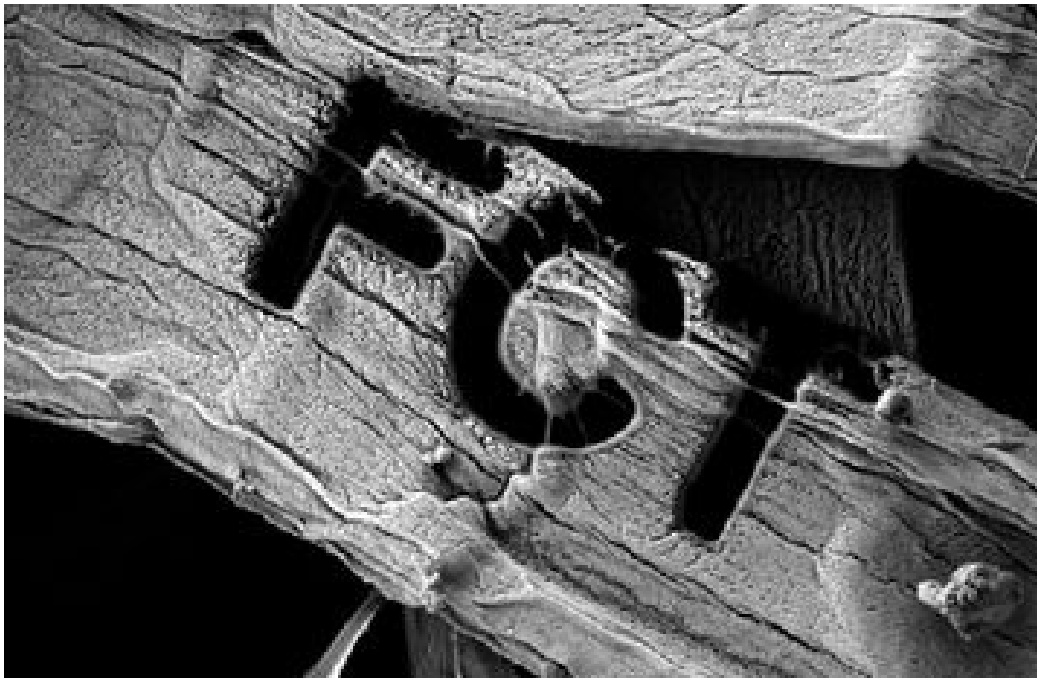
Introductory Note

This booklet aims to show the origin and ongoing activity of the MSc in Micro and Nanotechnologies Engineering, following the first five years of its existence. We will show you what we do, what we want and what students give back to us in terms of enthusiasm and real work, of great scientific and technical merit, which has been nationally and internationally recognized by various awards, gained by our students or staff members of the course.

We must also stress the openness of this course and its multidisciplinary and multisectorial nature, allowing students to align their training with their professional goals. In 2014, from a total of 202 enrolled students, 80.7% chose optional subjects, in some cases surpassing the number of required credits.

The introduction of soft skills relating to knowledge and technology is one of the innovative ideas of this engineering training program, first

Paper cellulose fibers with FCT logo nanopatterned.

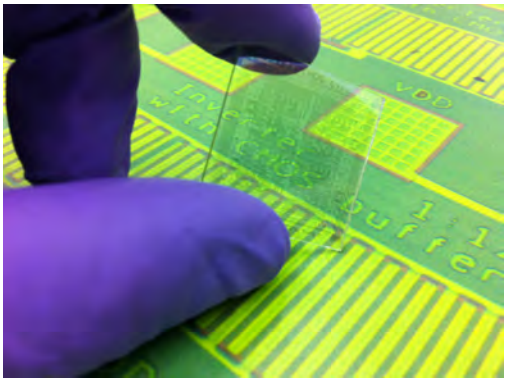


introduced in the Portuguese Universities by the FCT-UNL.

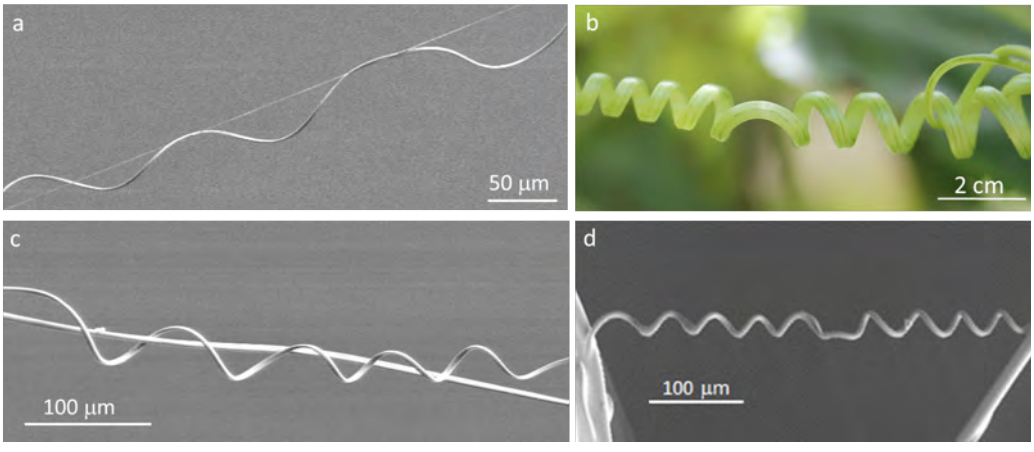
The information collected in these first five years shows that the most popular profiles selected by the students are Microelectronics, Nanocircuits and Functional Electronics; Advanced Materials and Devices for Medical Applications; Nanotechnologies.

To conclude, we could not leave out the testimonies of the first Masters' students in this training area which is essential for a sustained development that will generate wealth and employment.

Transparent microelectronic devices.



Helical shapes and perversions in biological systems: (a) fibers of spider webs; (b) cucumber tendril helices; (c) and (d) cellulose fibers electrospun from liquid crystalline solutions.



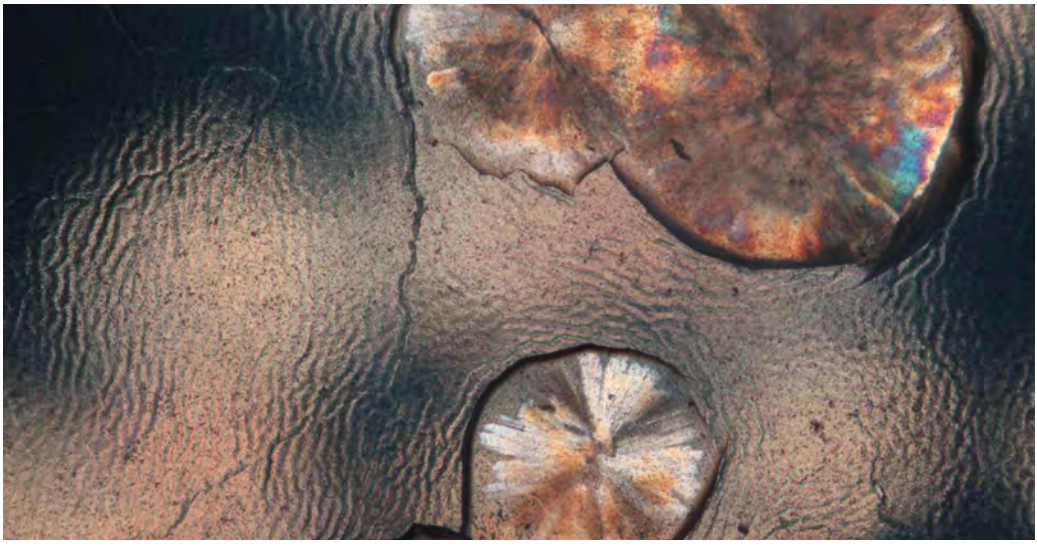
The Origins of Micro and Nanotechnologies in Portugal and UNL

The first Portuguese MSc in Micro and Nanotechnologies Engineering (MIEMN) began at the Department of Materials Science (DCM) of the FCT-UNL, based on the knowledge and experience of researchers of exceptional quality and their research which has achieved both enormous national and international success. The DCM has, for a long time now, had the necessary infrastructure and equipment related to this scientific and technological area. It is noteworthy that the first cleanroom for training in Microelectronics Processes in Portugal was installed in DCM in 1989, and continues to be the only one in Portugal with that scope. The department is also responsible for the national launch of core subjects, based on its know-how related to topics such as Semiconductor Materials (crystalline and amorphous); Microelectronics Processes; Thin-Films Technologies for Applications in Electronics and Optoelectronics; Materials for Energy Conversion; Liquid Crystals, among others.

In order to take advantage of these valences, in 2004 was proposed to the Scientific Council of FCT-UNL a terminal 2nd degree cycle in Microeletronics and Nanotechnologies.

Taking advantage of these singularities, in 2005 the Department submitted to the FCT-UNL's Scientific Council a proposal of a BA in Microelectronics and Nanotechnologies. This proposal evolved into the creation of a MSc, later approved by the Permanent Senate Section of the New University of Lisbon on 15 December 2005.

Crystal growth in a phosphate-based glass matrix under cross-polarized transmitted light.



This MSc was later adapted to the requirements of the Decree-Law no. 74/2006, regulating the implementation of the Bologna Process in Portugal. Under this new legislation, the MSc in Microelectronics and Nanotechnologies was approved for the 2006-2007 academic year, regulated and subsequently published in DR 2.ª Série – no. 38 of 24 February 2010.

This course was met with a great deal of student interest. There were, however major obstacles for those who applied for the first year of the MSc without having passed every subject in their third year of the 1st cycle. It also became clear that the curricular profile of the students admitted to the first year varied substantially and so, without detriment to the admission of students from other 1st cycle courses, it made sense to have an Integrated 5 years Masters Course which admitted students directly from year 12.

This process was initiated in 2007, culminating in the publication of Decree-Law in DR 2nd Series No. 48 of March 10 2009 and the creation of the Integrated Masters in Micro and Nanotechnologies Processes Engineering, whose name was later simplified to MSc in Micro and Nanotechnologies Engineering.

It is important to note that two associated laboratories linked to nanotechnologies were created in Portugal at that time: CENIMAT, via the i3N (Institute of Nanomanufacturing, Nanotechnology and Nanomodelling) was part of one, as well as the INL (International Iberian Nanotechnology Laboratory). DCM's connections to several international research institutions in the field was also a guarantee of quality.

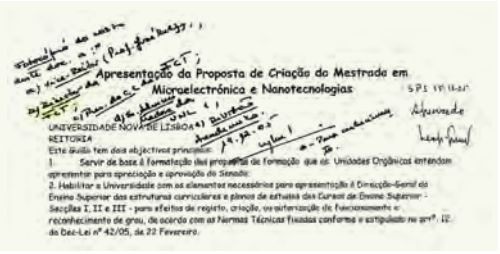
Meanwhile, in 2008, a former student and later department professor, Elvira Maria Correia Fortunato, was ranked first in the first edition of the advanced scholarships awarded by the European Research Council.

This was an important step toward the consolidation of the fields of Nanotechnology and Advanced Materials at the DCM. It also allowed us to equip the department with a nanofabri-

ACTA DA REUNIÃO Nº 332/CC/04
DA COMISSÃO COORDENADORA DO CONSELHO CIENTÍFICO DA FCT/UNL

4. Proposta de Criação da Licenciatura de 2º ciclo em Engenharia Microelectrónica e Nanotecnologias, com Mestrado Integrado

O Presidente do CC propôs que de imediato o DCM e DEE assinassem conjuntamente uma Declaração de Princípios relativamente a este assunto, o qual virá a ser discutido na próxima reunião da CCCC. Esta metodologia foi posta à votação tendo sido aprovada por unanimidade.

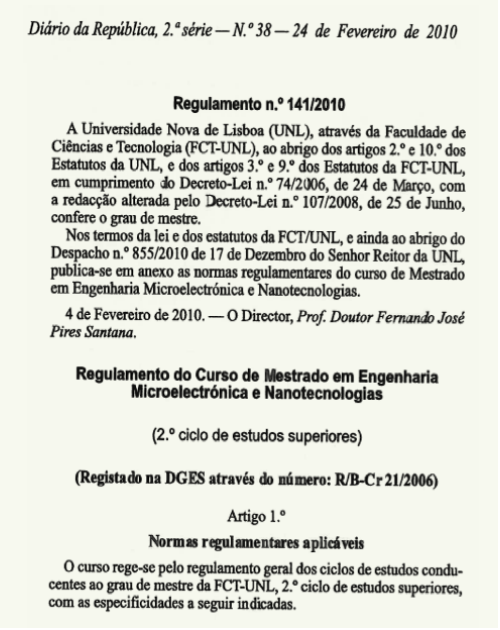


Apresentação da Proposta de Criação do Mestrado em Microelectrónica e Nanotecnologias

UNIVERSIDADE NOVA DE LISBOA
REITORIA

Este Guião tem dois objectivos principais:

1. Servir de base à formatação das propostas de formação que as Unidades Orgânicas entendam apresentar para apreciação e aprovação do Senado;
2. Habilitar a Universidade com os elementos necessários para apresentação à Direcção-Geral do Ensino Superior das estruturas curriculares e planos de estudos dos Cursos de Ensino Superior - Secções I, II e III - para efeitos de registo, criação, ou alteração de funcionamento e reconhecimento de grau, de acordo com as Normas Técnicas fixadas conforme o estipulado no art.º 12.º do Dec-Lei nº 42/05, de 22 Fevereiro.



Diário da República, 2.ª série — N.º 38 — 24 de Fevereiro de 2010

Regulamento n.º 141/2010

A Universidade Nova de Lisboa (UNL), através da Faculdade de Ciências e Tecnologia (FCT-UNL), ao abrigo dos artigos 2.º e 10.º dos Estatutos da UNL, e dos artigos 3.º e 9.º dos Estatutos da FCT-UNL, em cumprimento do Decreto-Lei n.º 74/2006, de 24 de Março, com a redacção alterada pelo Decreto-Lei n.º 107/2008, de 25 de Junho, confere o grau de mestre.

Nos termos da lei e dos estatutos da FCT/UNL, e ainda ao abrigo do Despacho n.º 855/2010 de 17 de Dezembro do Senhor Reitor da UNL, publica-se em anexo as normas regulamentares do curso de Mestrado em Engenharia Microelectrónica e Nanotecnologias.

4 de Fevereiro de 2010. — O Director, *Prof. Doutor Fernando José Pires Santana.*

Regulamento do Curso de Mestrado em Engenharia Microelectrónica e Nanotecnologias

(2.º ciclo de estudos superiores)

(Registado na DGES através do número: R/B-Cr 21/2006)

Artigo 1.º

Normas regulamentares aplicáveis

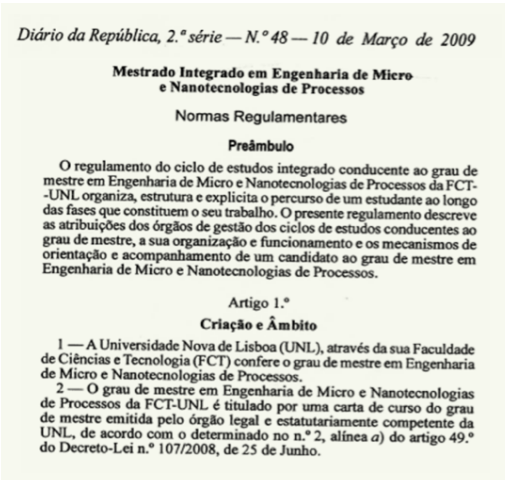
O curso rege-se pelo regulamento geral dos ciclos de estudos conducentes ao grau de mestre da FCT-UNL, 2.º ciclo de estudos superiores, com as especificidades a seguir indicadas.

Universidade Nova de Lisboa
Faculdade de Ciências e Tecnologia

Aprovada

ACTA DA REUNIÃO Nº 448/P/07
DO PLENÁRIO DO CONSELHO CIENTÍFICO DA FCT/UNL

Mestrado Integrado em Engenharia de Micro e Nanotecnologias de Processos –
Prof. Rodrigo Martins



Diário da República, 2.ª série — N.º 48 — 10 de Março de 2009

Mestrado Integrado em Engenharia de Micro e Nanotecnologias de Processos

Normas Regulamentares

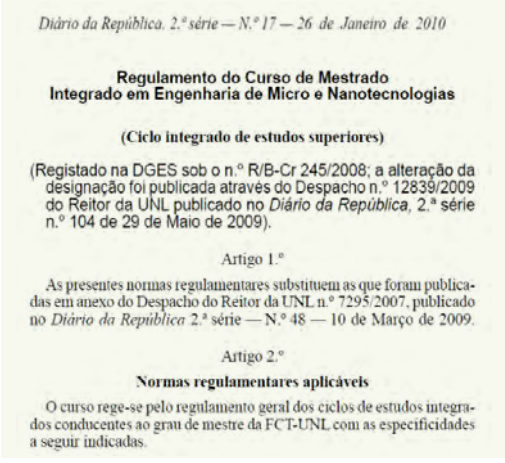
Preâmbulo

O regulamento do ciclo de estudos integrado conducente ao grau de mestre em Engenharia de Micro e Nanotecnologias de Processos da FCT-UNL organiza, estrutura e explicita o percurso de um estudante ao longo das fases que constituem o seu trabalho. O presente regulamento descreve as atribuições dos órgãos de gestão dos ciclos de estudos conducentes ao grau de mestre, a sua organização e funcionamento e os mecanismos de orientação e acompanhamento de um candidato ao grau de mestre em Engenharia de Micro e Nanotecnologias de Processos.

Artigo 1.º

Criação e Âmbito

1 — A Universidade Nova de Lisboa (UNL), através da sua Faculdade de Ciências e Tecnologia (FCT) confere o grau de mestre em Engenharia de Micro e Nanotecnologias de Processos.
2 — O grau de mestre em Engenharia de Micro e Nanotecnologias de Processos da FCT-UNL é titulado por uma carta de curso do grau de mestre emitida pelo órgão legal e estatutariamente competente da UNL, de acordo com o determinado no n.º 2, alínea *a*) do artigo 49.º do Decreto-Lei n.º 107/2008, de 25 de Junho.



Diário da República, 2.ª série — N.º 17 — 26 de Janeiro de 2010

Regulamento do Curso de Mestrado Integrado em Engenharia de Micro e Nanotecnologias

(Ciclo integrado de estudos superiores)

(Registado na DGES sob o n.º R/B-Cr 245/2008; a alteração da designação foi publicada através do Despacho n.º 12839/2009 do Reitor da UNL publicado no *Diário da República*, 2.ª série n.º 104 de 29 de Maio de 2009).

Artigo 1.º

As presentes normas regulamentares substituem as que foram publicadas em anexo do Despacho do Reitor da UNL n.º 7295/2007, publicado no *Diário da República* 2.ª série — N.º 48 — 10 de Março de 2009.

Artigo 2.º

Normas regulamentares aplicáveis

O curso rege-se pelo regulamento geral dos ciclos de estudos integrados conducentes ao grau de mestre da FCT-UNL com as especificidades a seguir indicadas.

cation station, which is, to date, the only fully operational one in the country.

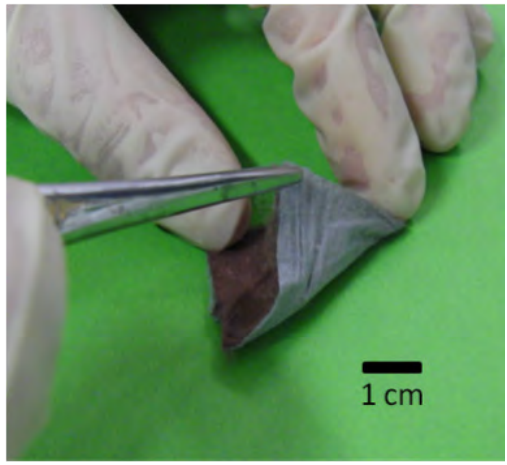
2011 saw some minor changes to the MIEMN, reflected in some optional subjects, approved by the President of the Scientific Council of the FCT-UNL.

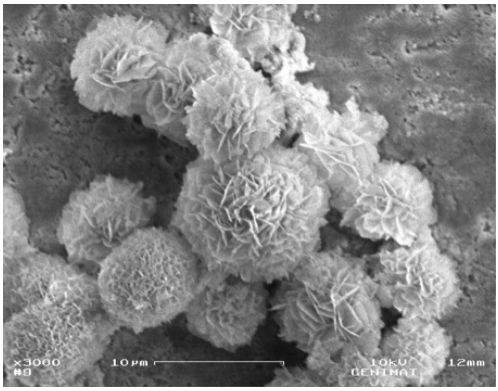
Finally, in 2012, the course was restructured in order to follow the curricular changes within the FCT, in what was called the "FCT Profile" (http://www.fct.unl.pt/programa-de-introducao-pratica-profissional).

This innovation in the training offered by the FCT aimed to enrich the education of students with complementary skills, including soft skills, entrepreneurship, contact with companies and scientific research. More specifically, it is an Introductory Program to Professional Practice in a company and an Introductory Program to Scientific Research (PIIC), and runs intensively for five weeks in the interim period between semesters.

All this activity is complemented by cultural activities that students voluntarily enroll for.

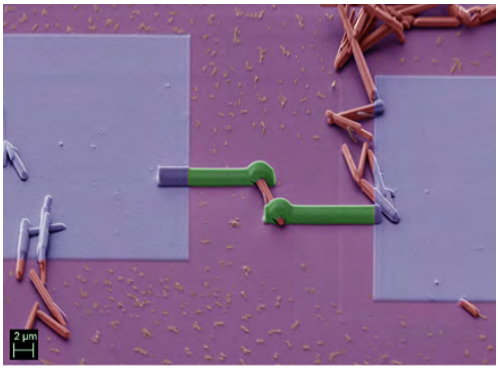
Bio-battery based on electrospun fiber membranes.





Flower-like crystals of calcium phosphate formed during the bioactivity test on hydroxyapatite.

Nanofabrication laboratory.



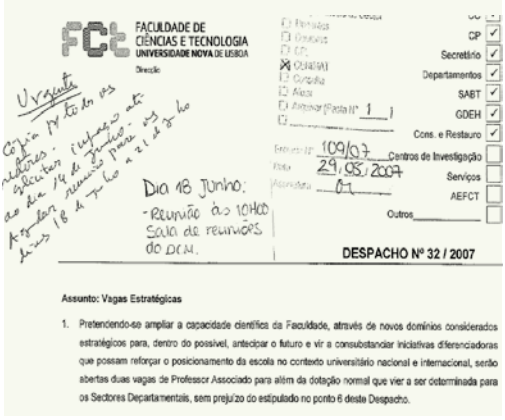
Nanowire transistor.

Microelectronics and Nanotechnology as a Strategic Area of FCT-UNL

The Faculty of Science and Technology of the New University of Lisbon (FCT-UNL), on May 28, 2007, through dispatch 32/2007 opened an internal tender for two strategic associate professor vacancies in order to cross-promote skills in education and research on campus, with the purpose of having a research-oriented University. The jury of this tender was composed of members from international universities, led by University College London (UCL), Professor Sir W.A. Wakeham.

The Department of Materials Science submitted a proposal to enhance the connection of education in the area of Microelectronics and Nanotechnologies, which Masters had meanwhile been approved, with research, which was growing on campus, namely with the remarkable pioneering work in the area of transparent electronics and as inventors of paper electronics and paper memory. To this R&D activity we must add the outstanding work in the area of thin film processing to fabricate: integrated devices for optical and gas sensing and solar cells. Moreover, the Portuguese group coordinated the first European project in the area of active and passive multi-oxide compounds (Multiflexioxides) for electronic applications, among others. Those where strategic research areas, internationally competitive, specifically for the so called creative industry of the future, based on multisectoral and multidisciplinary knowledge.

The proposal submitted by DCM was classified by the International jury as the best, being quite ahead from all others, as noted in the



FCT FACULDADE DE CIÊNCIAS E TECNOLOGIA
UNIVERSIDADE NOVA DE LISBOA
Direcção

CP
Secretário
Departamentos
SABT
GDEH
Cons. e Restauro
Centros de Investigação
Serviços
AEFCT
Outros

Urgente
Dia 18 Junho:
- Reunião às 10H00
Sala de reuniões do DCM.

DESPACHO Nº 32 / 2007

Assunto: Vagas Estratégicas

1. Pretendendo-se ampliar a capacidade científica da Faculdade, através de novos domínios considerados estratégicos para, dentro do possível, antecipar o futuro e vir a consubstanciar iniciativas diferenciadoras que possam reforçar o posicionamento da escola no contexto universitário nacional e internacional, serão abertas duas vagas de Professor Associado para além da dotação normal que vier a ser determinada para os Sectores Departamentais, sem prejuízo do estipulado no ponto 6 deste Despacho.

7. Micro and Nanotechnologies

This proposal is the only one that approaches the style and content that one might expect of a proposal for a strategic investment. It identifies very clearly the strategic importance of nanotechnologies and nanomaterials as an important area internationally. The creation of INL by the Spanish and Portuguese governments strongly suggests there is a national strategic importance attached to the area. A very strong case is set out that because I3N belongs to UNL that there is an FCT strategic imperative for this proposal. There is now more said than before about what I3N is so that it is possible to judge the scale of commitment and enthusiasm for the area now unlike in the previous proposal. There has been a small attempt to think in a focused way about the particular areas of Nanotechnology and Nanomaterials that will be considered but this is still slightly weaker than we would like ideally. There is though more evidence of coherence than before.

The issue of the investment that we questioned in the last proposal is now satisfactorily resolved and much changes our perspective on the proposal. In addition, attention has been paid to the recruitment situation. The response is reasonably encouraging. We feel that the case is now made very much more coherently than before and could be a useful guide for others to follow
The costs are now clearly very different than the previous proposal implied because much has been done already and collectively.

Of all the proposals we consider this stands out for the quality of the effort put into it, the response to our previous critique and we are positive about it.

Our scores would be

International Strategic Significance of the field proposed 9
Portuguese Strategic Significance 8
FCT-UNL Strategic Significance of the field proposed 8
Coherence of the field proposed with FCT development 7
New infrastructure for investment at FCT and elsewhere 9
Availability of individuals to recruit 7
Quality of the case made in the proposal 7
Supporting human resources at FCT 7
Cost/benefit 8

Total: 70

evaluation report performed on the submitted proposals.

As a result an associated professor vacancy was envisioned for which a public tender was opened in 2011 (Diário da República 2nd series, No. 200 of 18 October 2011 edict No. 1002- 20113) and the position was filled in 2012.

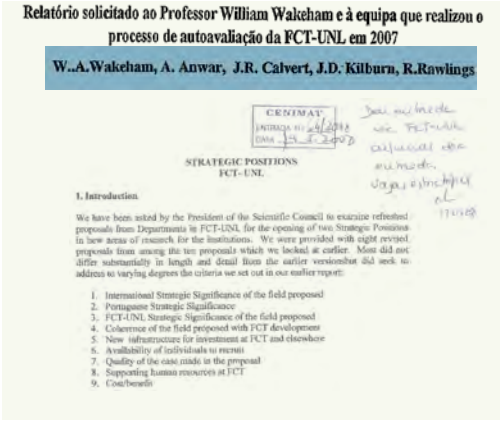
Also associated with excellence in research performed, FCT-UNL opened in 2011 a tender for vacancies of merit for full professors, associates and assistants, according to the scientific skills, where candidates would also have to demonstrate teaching skills in accordance with a University of high scientific merit. This intended to assess the existing excellence in Caparica campus and open public tenders where these skills were internationally recognized, whether or not there were other putative candidates in addition to the internal candidates.

More than 50% of FCT-UNL's teaching and research staff applied for this tender, with a total that exceeded 300 candidates for 29 vacancies.

It is noteworthy that one of the nine full professor positions was attributed to Professor Elvira Fortunato, after which the public tender was announced in DR 2nd series, No. 191 of 4 October 2011, edict No. 924/2011, area of Microelectronics and Nanofabrication, which was won by the candidate.

In terms of assistant professors, two out of the five available positions in the internal tender were gained by Dr. Luís Pereira and Dr. Pedro Barquinha, followed by the opening of the respective public tenders, DR 2nd series, No. 196 of 12 October 2011 edict No. 961 / 201, which were won by the two candidates.

All this history clearly demonstrates the internal competencies in education and research activity, which are a vital component for the intended expected success of the training



Relatório solicitado ao Professor William Wakeham e à equipa que realizou o processo de autoavaliação da FCT-UNL em 2007

W..A.Wakeham, A. Anwar, J.R. Calvert, J.D. Kilburn, R.Rawlings

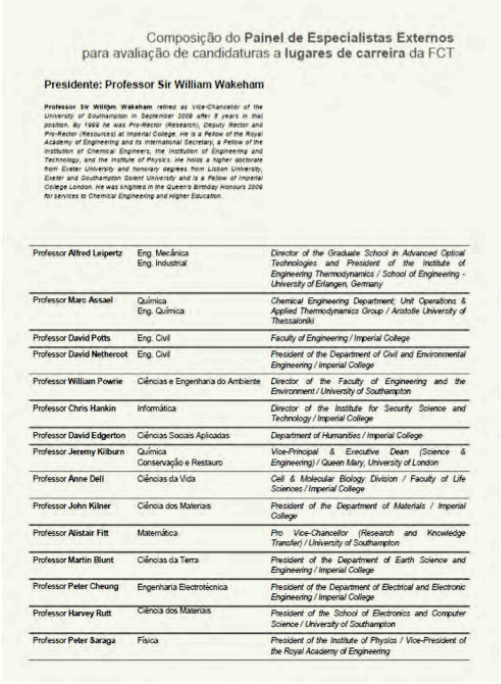
CENIMAT

STRATEGIC POSITIONS
FCT- UNL

1. Introduction

We have been asked by the President of the Scientific Council to examine refreshed proposals from Departments in FCT-UNL for the opening of two Strategic Positions in new areas of research for the Institutions. We were provided with eight revised proposals from among the ten proposals which we looked at earlier. Most did not differ substantially in length and detail from the earlier versionsbut did seek to address to varying degrees the criteria we set out in our earlier report:

1. International Strategic Significance of the field proposed
2. Portuguese Strategic Significance
3. FCT-UNL Strategic Significance of the field proposed
4. Coherence of the field proposed with FCT development
5. New infrastructure for investment at FCT and elsewhere
6. Availability of individuals to recruit
7. Quality of the case made in the proposal
8. Supporting human resources at FCT
9. Cost/benefit



Composição do **Painel de Especialistas Externos** para avaliação de candidaturas a **lugares de carreira** da FCT

Presidente: Professor Sir William Wakeham

Professor Sir William Wakeham retired as Vice-Chancellor of the University of Southampton in September 2008 after 8 years in that position. By 1999 he was Pro-Rector (Research), Deputy Rector and Pro-Rector (Resources) at Imperial College. He is a Fellow of the Royal Academy of Engineering and its International Secretary, a Fellow of the Institution of Chemical Engineers, the Institution of Engineering and Technology, and the Institute of Physics. He holds a higher doctorate from Exeter University and honorary degrees from Lisbon University, Exeter and Southampton Solent University and is a Fellow of Imperial College London. He was knighted in the Queen's Birthday Honours 2009 for services to Chemical Engineering and Higher Education.

Professor Alfred Leipertz	Eng. Mecânica Eng. Industrial	*Director of the Graduate School in Advanced Optical Technologies and President of the Institute of Engineering Thermodynamics / School of Engineering - University of Erlangen, Germany*
Professor Marc Assael	Química Eng. Química	*Chemical Engineering Department, Unit Operations & Applied Thermodynamics Group / Aristotle University of Thessaloniki*
Professor David Potts	Eng. Civil	*Faculty of Engineering / Imperial College*
Professor David Nethercot	Eng. Civil	*President of the Department of Civil and Environmental Engineering / Imperial College*
Professor William Powrie	Ciências e Engenharia do Ambiente	*Director of the Faculty of Engineering and the Environment / University of Southampton*
Professor Chris Hankin	Informática	*Director of the Institute for Security Science and Technology / Imperial College*
Professor David Edgerton	Ciências Sociais Aplicadas	*Department of Humanities / Imperial College*
Professor Jeremy Kilburn	Química Conservação e Restauro	*Vice-Principal & Executive Dean (Science & Engineering) / Queen Mary, University of London*
Professor Anne Dell	Ciências da Vida	*Cell & Molecular Biology Division / Faculty of Life Sciences / Imperial College*
Professor John Kilner	Ciência dos Materiais	*President of the Department of Materials / Imperial College*
Professor Alistair Fitt	Matemática	*Pro Vice-Chancellor (Research and Knowledge Transfer) / University of Southampton*
Professor Martin Blunt	Ciências da Terra	*President of the Department of Earth Science and Engineering / Imperial College*
Professor Peter Cheung	Engenharia Electrotécnica	*President of the Department of Electrical and Electronic Engineering / Imperial College*
Professor Harvey Rutt	Ciência dos Materiais	*President of the School of Electronics and Computer Science / University of Southampton*
Professor Peter Saraga	Física	*President of the Institute of Physics / Vice-President of the Royal Academy of Engineering*

course in Micro and nanotechnologies and that current results clearly demonstrate:

- The excellence in education we have;
- The ability to capture highly motivated students for the course;
- The excellence in research, as evidenced by the ERC Advanced Grant won by Professor Elvira Fortunato in the first edition, as well as the number of international projects won in the area, where we participate or coordinate;
- Publishing scientific papers in high ranking journals and how they are cited (more than 10 000 citations in the last five years);
- The number of national and international awards won by students and researchers (over 50);
- The number of invited or plenary lectures at conferences and specialty symposia (over 75 in the last five years);
- The excellence of the students we attract and how they are motivated towards a world-class activity strongly supported by educational and scientific laboratories;
- The enormous entrepreneurial skills that the students have shown in scientific and technological terms, namely the creation of young companies and the search for new horizons, beyond borders, in the global and competitive society in which we operate.


UNIVERSIDADE NOVA DE LISBOA

Gabinete do Director
Despacho N.º 0440/12

CC
DCM

C/c ao Núcleo de Pessoal
da Reitoria da U.N.L.

Exmº. Senhor
Director da Faculdade de Ciências e
Tecnologia da U.N.L.
Quinta da Torre

2829-516 CAPARICA

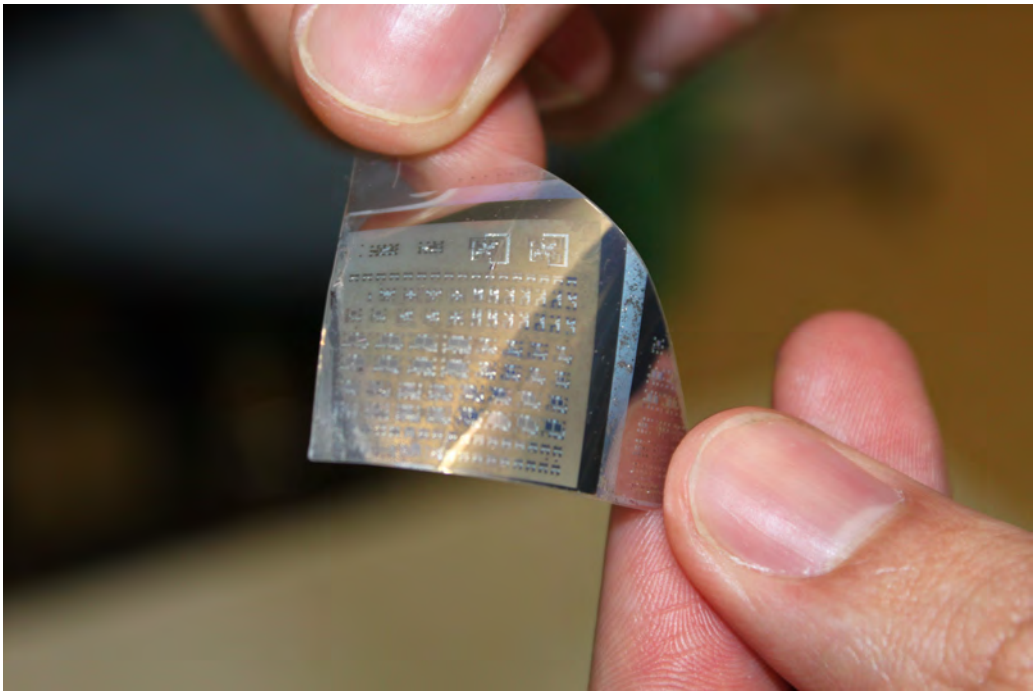
24.02.12

Sua Referência | Sua Comunicação de | Nossa Referência R/PD-6 | Data

1079 FEB 17'12

Assunto: **Concurso para Professor Catedrático na Área Disciplinar de Microeletrónica e Nanofabricação.** (1 posto de trabalho)

Flexible oxide-based integrated circuits



Training Goals of the MIEMN

The Integrated Masters in Micro and Nanotechnologies Engineering (MIEMN) aims to provide the national and international job market with professionals with sound scientific training, that can help companies meet the challenges of global competitiveness. It is intended to build competencies in disruptive and innovative fields of knowledge, linked to Scientific Research Excellence through:

1. Solid scientific education in the areas of mathematics, physics, chemistry and also conception, management and innovation, which are essential pillars for every engineer's training.

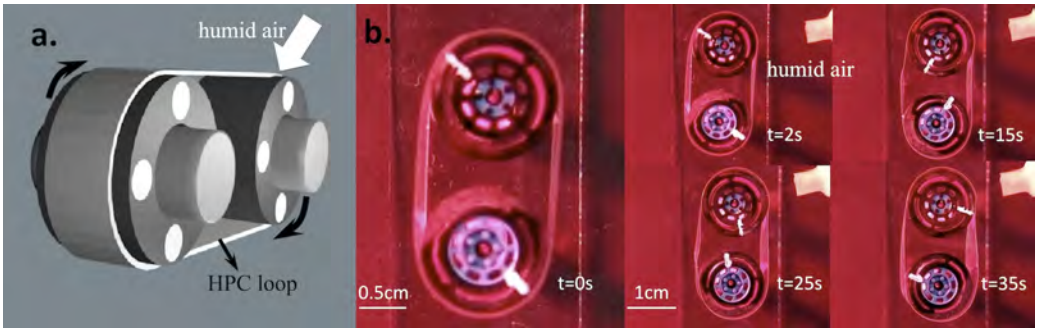
2. Encourage creativity and problem solving.

3. Encourage teamwork skills, leadership and entrepreneurship.

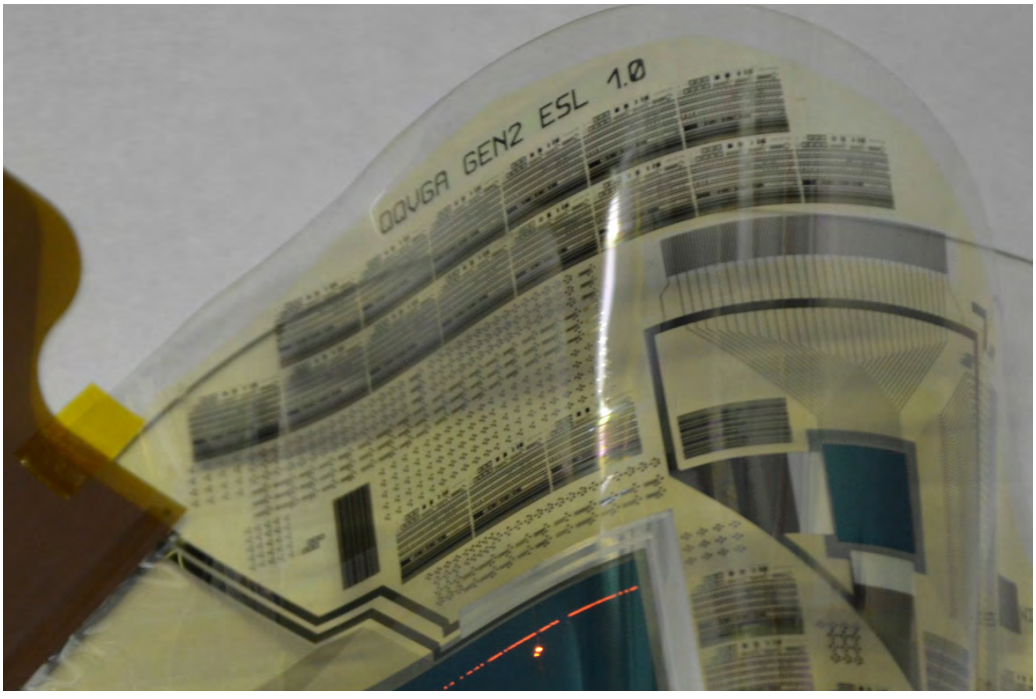
4. Multidisciplinary training in Electronics, Advanced Materials, Processing Technologies for Advanced Materials, Devices and Integrated Systems; Planning and Design of Micro/Nano-circuits.

5. Provide competencies and knowledge in the area of Microelectronics and Nanotechnologies (including Micro and Nanofabrication) for multisectorial applications such as Information and Communication Technologies, Life Sciences and Energy; the three major underpinnings of the sustained industrial development, in which more than 80% of future jobs will be created, especially in the so-called creative industries of the future, with emphasis on iterative mobile systems, smart packaging and transportable and mobile energy.

Moisture-driven liquid crystal celulose motor



Flexible display Holst Centre.



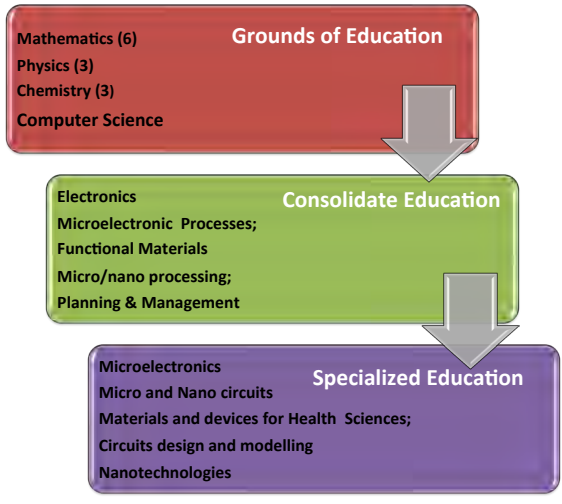
Course Structure

The course is multidisciplinary, allowing students to develop skills in several scientific and technical areas.

It includes a two years structuring block where the lectures focus on the knowledge pillars: Mathematics, Physics and Chemistry, make up about 60% of the total educational program and are complemented by a more generic training in the area of Engineering, Introduction to Micro and Nanotechnologies; Training on Materials Technologies Applied to Nanotechnologies; Introduction to Electronics and Instrumentation; Curricular Education in both laboratory and in business environments.

After this first unit, students go through one year that provides an introduction to specialized training. Here students develop skills that allow them to enter the labor market as technologists in fields related to: Microelectronics; Development of Functional Materials for Electronics and the Life Sciences; Micro and Nanoprocessing Technologies; Management and Planning; and optional subjects, so that students can construct their own training portfolio according to their career goals. Finally, the last two years offer specialized training, targeted to the following areas: Microelectronics, Microelectronics and Nanocircuits; Materials and Devices for Life Sciences; Nanotechnologies.

We must mention the great contribution of optional subjects to the profile of the Micro and Nanotechnologies Engineer Training. The first five years of the MSc allow us to affirm that: among 73 students enrolled in the 2nd year 2010/2011, 30.5% selected optional subjects; of the 109 students enrolled in 2011/2012, 29.4% had optional subjects; in 2012/2013, of the 162 students enrolled, 66 had optional subjects; in 2013/2014, of the 202 students enrolled, 86.7% had optional subjects. The most opted subjects are those related to Electronics, Life Sciences and Advanced Functional Materials for multisectorial applications.



Presented below is the curriculum offered, with the subjects taught by DCM professors highlighted in red.

In the MIEMN, as in most engineering courses, in the first two years are oriented to the consolidation of technical and scientific tools in mathematics, physics and chemistry. There is one subject on the Introduction to Micro and Nanotechnologies, where students have their first contact with the course and obtain a global overview of the topics to be covered in the MSc.

A very important aspect is the repetition of enrollments in a given subject. A course of 6 ECTS in the second enrollment is worth 12 ECTS and in the third, 18 ECTS. As the limit of credits per semester is 30 ECTS, the number of subjects that can be chosen is limited.

Thus, it is necessary that students persevere and are aware that before entering the world of Micro and Nanotechnology, they must master the foundations of physics, mathematics and chemistry.

Semester	Course	ECTS
1st	Mathematical Analysis I C	6
	Linear Algebra and Analytic Geometry C	6
	Soft Skills for Science and Technology	3
	Physics I	6
	Introduction to Micro and Nanotecnologies	3
	Chemistry B	6
2nd	Mathematical Analysis II C	6
	Physics II	6
	Informatics for Science and Engineering E	6
	Probability and Statistics C	6
	General Organic Chemistry	6
3rd	Mathematical Analysis III C	6
	Science, Technology and Society	3
	Computer Aided Technical Drawing	3
	Physics III	6
	Technology of Nanomaterials	6
	Instrumentation Tecniques	6
4th	General Biochemistry B	6
	Mechanical Behavior of Nanomaterials	6
	Electronics I	6
	Physical Properties of Materials	6
	Elective	6
5th	Electronics II	6
	Quality Management	6
	Semiconductor Materials	6
	Quantum Mechanics	6
	Techniques for Materials characterization	6

Semester	Course	ECTS
6th	Microelectronics I	6
	Quality Planning and Control	6
	Materials Processing for Electronics	6
	Seminars on Micro and Nanotechnologies	3
	Surfaces and Interfaces	6
	Undergraduate Research Opportunity Program	3
	Undergraduate Practice Opportunities Program	3
7th	Biomaterials	6
	Biosensors	6
	Microelectronics II	6
	Elective	6
	Elective	6
8th	Organic Materials Electronics	3
	Entrepreneurship	3
	Flat Panel Displays Materials and Technology	6
	Microelectronics III	6
	Elective	6
	Elective	6
9th	Business Management	3
	Introduction to Dissertation	3
	Nanofabrication and Characterization of Nanostructures	6
	Optoelectronics	6
	Elective	6
	Elective	6
10th	Master's Thesis	30

MSc Coordinator and her Functions

The coordinator of this Masters is Professor Isabel Ferreira (imf@fct.unl.pt) whose main functions are to promote the smooth functioning of the program and ensure its quality; represent the course; prepare proposals for changes to the current curriculum; promote national and international dissemination of the course; prepare the annual report on the quality of the course; promote student-teacher interaction and contribute to the success of the continuing education of all students throughout their course of training, amongst others.

As coordinator of the course, I am at your entire disposal for any questions that you may have or to solve any problem either academic or personal, or refer you to someone that might help.

Advice from the MSc Coordinator to Students that are enrolling for the first time in MIENM

As MSc coordinator, I present for consideration by all students enrolling for the first time in this program, the following set of questions:

1. What do I want to do 5 years from now?

Answer the question and pursue this goal over the next five years. This will help you define your training profile.

2. The first semester!

Good adaptation to the first semester is key to your academic success. Do not neglect your studies. The demand is much higher than what you are used to both in the number of subjects and in terms of amount of content lectured. Thus it is very important that you plan your study and throughout the semester.

3. I need help!

If you are in trouble, do not hesitate to ask for help, either to professors, colleagues, friends...

We want you to feel good here at the FCT-UNL.

Prof. Isabel Ferreira.

Rigid and flexible electronic circuits based on oxide semiconductors.

Example of what the first MIEMN students did during the course: the iNOVAfuture (https://www.facebook.com/iNOVAfuture; geral.inovafuture@gmail.com) is a junior business founded by MIEMN students, dedicated to developing projects of various scopes in a multidisciplinary way. To this end, the team gathers about 40 students from various courses. Find out more about this initiative, where you can develop your projects and ideas.

The Student's Voice

Here is some advice from the MIEMN' Pedagogic Commission:

- Attend all your classes and be attentive;
- Distribute the work load;
- Prepare for group work;
- Create healthy relationships with professors;
- Study but also take advantage of the student life

Rita Pontes: "How Nanomaterials and Nanotechnologies excited me"

My name is Rita Pontes. I enrolled in Materials Engineering in the academic Year 2009/2010 and after completing the degree, I enrolled in the Master Micro and Nanotechnologies Engineering. During these years, I have been offered several challenges (projects) within the subjectss of the two courses (MIEMat and MIEMN). As an example, during the subject Cellulose and Paper Materials, the student-led project "TFTs in substrate nanocelulose" served as the basis for a publication (Special Issue Article and Cover) in the journal Nanotechnology.

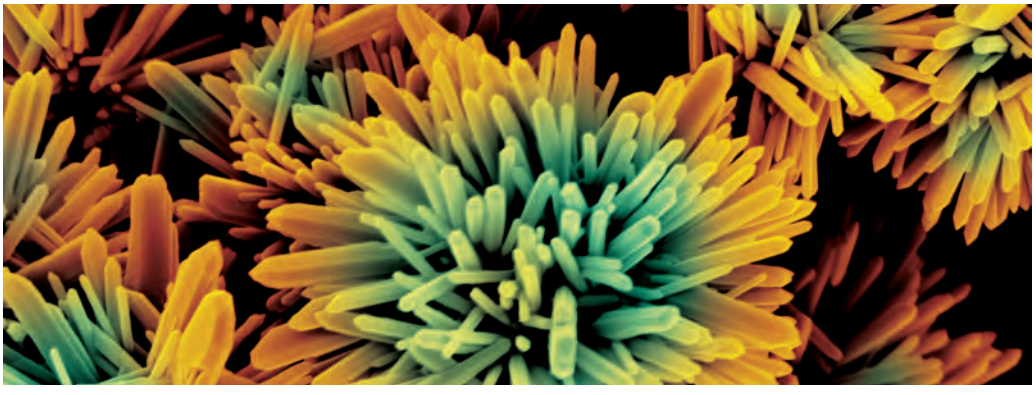
Also, in the context of this program, I had the opportunity to develop, together with some colleagues, a biosensor (SOCE - Somatic Cells Biosensor) for milk' quality control. During the interim semester 2012/2013, we won the first place in the competition within FCT-UNL and also the first place in the Prize American Corners (an initiative of the US Embassy in partnership with libraries of several universities).

At the invitation of the US Embassy, in early 2014, we participated in the International Visitor Leadership Program (IVLP), and for two weeks we had the opportunity to visit various institutions (universities, research centers, incubators for start-ups). During this trip, we managed to promote a partnership with the New York Institute of Technology (NYIT), which in the near future will facilitate the exchange of students between the two colleges (NYIT and FCT-UNL).

More recently, a new project ChromicAds has come up (in which all team members belonged to our department), which aims to use thermochromic inks on non-conventional advertising. We finished the NEW Idea Competition in the Top 10 and we are currently in the final stages of The Next Big Idea Competition - Special Edition Santander Universities, having recorded an episode that will air soon on SIC Notícias and SIC Internacional.

Simultaneously, I joined the Junior Company iNOVAfuture where I was Team Manager of the thermochromic Project, which aimed to use thermochromic technology in ceramics. It was a unique experience that gave me a new vision not only on a project management level but also on conflict management and interpersonal relationships. I also had the opportunity to receive training in Ynvisible, a spin-out of YDreams.

The Department of Materials Science promotes, above all, pro-activity. We should not limit ouselves to being college students, but to participate in the active life of this department and enjoy what it has to give us, both in terms of infrastructure and knowledge. It was a privilege to be a part of this family for the past five years.



Farah Alimagham: "A springboard to the future"

Long before I finished high school, I was constantly burdened by the questions: "What do I want to do when I'm older?" "What do I want to study?" "Where do I see myself in the next ten, twenty or even thirty years?"

Well I must say I was never quite sure, but one thing I knew for certain: I wanted something challenging, futuristic and above all something that could potentially make a positive change to humanity.

When the time came to choose a specific area to study at university, I realized that no field fitted my criteria better than the field of micro/nanotechnology, a field that seemed to offer a whole new world, full of discoveries and unimaginable opportunities, with endless space for creativity and thinking beyond limits. That is why I decided to enrol in the Integrated Masters program in Micro and Nanotechnology at the Faculty of Science and Technology (FCT) of the New University of Lisbon (UNL), which has throughout the years, provided me with all this and so much more. Recently undergoing a hands-on PhD-level internship focused on micro and nanofabrication of microfluidic devices for electrochemical and optical applications at the Technical University of Denmark (DTU) was clear proof of that, since I was able to easily grasp and work on all the main subject matters.

Alongside my academic ambitions, I've always felt a constant need to travel and explore the world. Therefore, I aim to combine my academic life with travelling and experiencing different cultures and ways of li ving.

In June 2014 I had the opportunity to attend the Inter-Continental Advanced Materials for Photonics (I-CAMP) Summer School 2014 held in South Africa and organized by University of Colorado Boulder and I2CAM Institute for Complex Adaptive Matter (USA). It was during this enlightening experience, where I had the chance to meet and bond with an outstanding group of students and internationally renowned professors from all parts of the globe, that I was suggested the opportunity to continue my master's studies in the USA. This idea immediately captivated me and triggered off the search for labs focused on micro and nanotechnology in the US.

Upon discovering a research group with absolutely intriguing on-going projects at the nanotechnology centre of Purdue University, a major research university in the US known for its discoveries in science, technology and engineering, I contacted the director of the lab with a detailed description of my academic background, achievements and goals, stating relevant subjects and projects I had enrolled in the past few years. Within the same week, after a discussion over the phone, I was more than thrilled to be welcomed to the lab to undertake my graduation thesis project from January 2015 on.

Currently, in the final lap towards completing my master's studies, I feel confident that joining FCT-UNL was an excellent choice. This once in a lifetime experience provided me with not only the essential tools and skills necessary to achieve my ultimate goals and personal passion but also a multidisciplinary background and knowledge in this fascinating field. Nanotechnology is all about changing how people live and improving the quality of life for individuals throughout the globe with minimal impact on the environment through technological breakthroughs, and taking part in such a discovery is without a doubt my ultimate career goal.

Ricardo Ramos: "A future of dreams and challenges"

The age of the "whys" is a stage that all children go through; however, my continued until today and shows no signs of disappearing. Questions like "Why is the sky blue?" Or "Why do voices come out from the radio?" plagued my growth.

During my application to higher education, I found the course Micro and Nanotechnologies Engineering, offered by FCT-UNL, which quickly seduced me for being a pioneering course in the field (with only one year of existence). This course, by combining the ability to provide answers to many of my "whys" to the promising future of nanotechnology, seemed the perfect choice to satisfy my curiosity and to open up doors to a future full of opportunities and challenges.

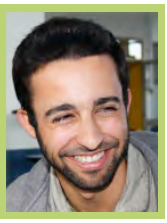
Today I attend the fifth year of the course and I can say that I made the right choice. Besides all the knowledge I have acquired over the past five years, I still had the opportunity to organize various events such as the FCT Technology Summits and the Fourth National Materials Student Meeting. Participation in the organization of these events allowed me to meet many classmates studying in various universities around the country and contact with professors, researchers and engineers working in the field of Materials in and out of Portugal. I was also challenged to participate in two contests of entrepreneurship: one within FCT-UNL in which I developed, along with a group of colleagues, the ACE project (Action Creates Energy), which was intended to charge electronic equipment with energy generated by movement of the human body; another at University level (UNL), in the NEW IDEA COMPETITION, with the SWALIP project (Sun-Water Tulip), a hybrid system for collecting rainwater and solar energy.

Once I heard someone say that traveling is the only thing we can buy that makes us richer, and that phrase has awakened in me a dream, probably shortly after my first "whys" – travel around the world. I have experienced, in the travels I've done, feelings / emotions impossible to recreate through technology (photos, videos, etc.) and also impossible to be described by words, because, and quoting Augustine of Hippo, "Life is a book and those who don't travel read only the first page."

As I am close to finish the course and I have to develop a Masters thesis I decided to contact the Biological & Biomimetic Materials Laboratory of Nanyang Technological University in Singapore. Thus, the training that I received in the MSc in Micro and Nanotechnologies Engineering leaves me now the opportunity to develop a six months work in one of the best universities in the world, involved in a recent, promising and innovative project.

My journey through the Department of Materials Science, Faculty of Science and Technology, New University of Lisbon was a very enriching experience, in which made many friends and that leaves me with a feeling of satisfaction for being part of a wonderful group that has the possibility of having a major role in the future society.

Diogo Vaz: “Wanting more and being better”



“There are so many things that I still don’t know”. Despite the innocence in this proposition, it is probably one of the most amazing ideas I daily come across. There is nothing more fascinating than to know that there is room for improvement, that there is always room to be better.

Maybe at the time this idea was not as structured as it is now, but since I can recall, one of my main goals is that of personal enrichment through knowledge. A logical step was to enrol in higher education, the first stage to get closer to achieving that goal.

I was raised in an environment highly influenced by technology, with long hours playing videogames, opening a VCR just for the curiosity of learning its functioning. The choice of following a field of engineering was obvious to say the least.

I initially developed a great interest for areas such as electronics, physics and materials, but when confronted with the choice of a higher education path, risking everything on one of these topics seemed too narrow a choice. Every university student had to go through this tremendous indecision, but for me, it was paramount to be absolutely sure I was making the right decision. After hours of research, I came across a course which surprisingly offered me all these areas. Astonished, I applied with the utmost conviction.

Almost five years later, I can say that it was probably one of the best decision I ever made. I was amazed by the amount of different topics I could deepen. And not only could I follow my dream of constant discovery of the world around me as I unlocked doors to continue that goal as a life project. In addition, I had the opportunity to meet extraordinary people, from teachers who inspired me and helped me become a better professional as friends who have become essential in my life.

Within two months I’ll be heading for a new challenge in France, to develop a project in the field of Spintronics with a group led by Professor Albert Fert, Nobel Prize in Physics in 2007. With the help of Professor Rodrigo Martins it was therefore possible to discover a thesis which combines virtually all the topics that aroused my interest over the years and to fulfil the dream of having a long-term experience abroad.

With all this, I hope to continue evolving professionally, improving what we already know and giving my contribution to science, and intelectually, never forgetting who matters, nor the hobbies I much appreciate. I also hope that the course and the department can keep evolving, so that this feeling I am bringing with me can be carried by all the future engineers of micro and nanotechnologies!.

José Rui Silva : “What I hope for my life journey”

My name is José Rui Silva, I am from Ansião, a village in the center of Portugal, and I am now in my fourth year of the MIEMN. I am a member of the course’s Pedagogical Commission.

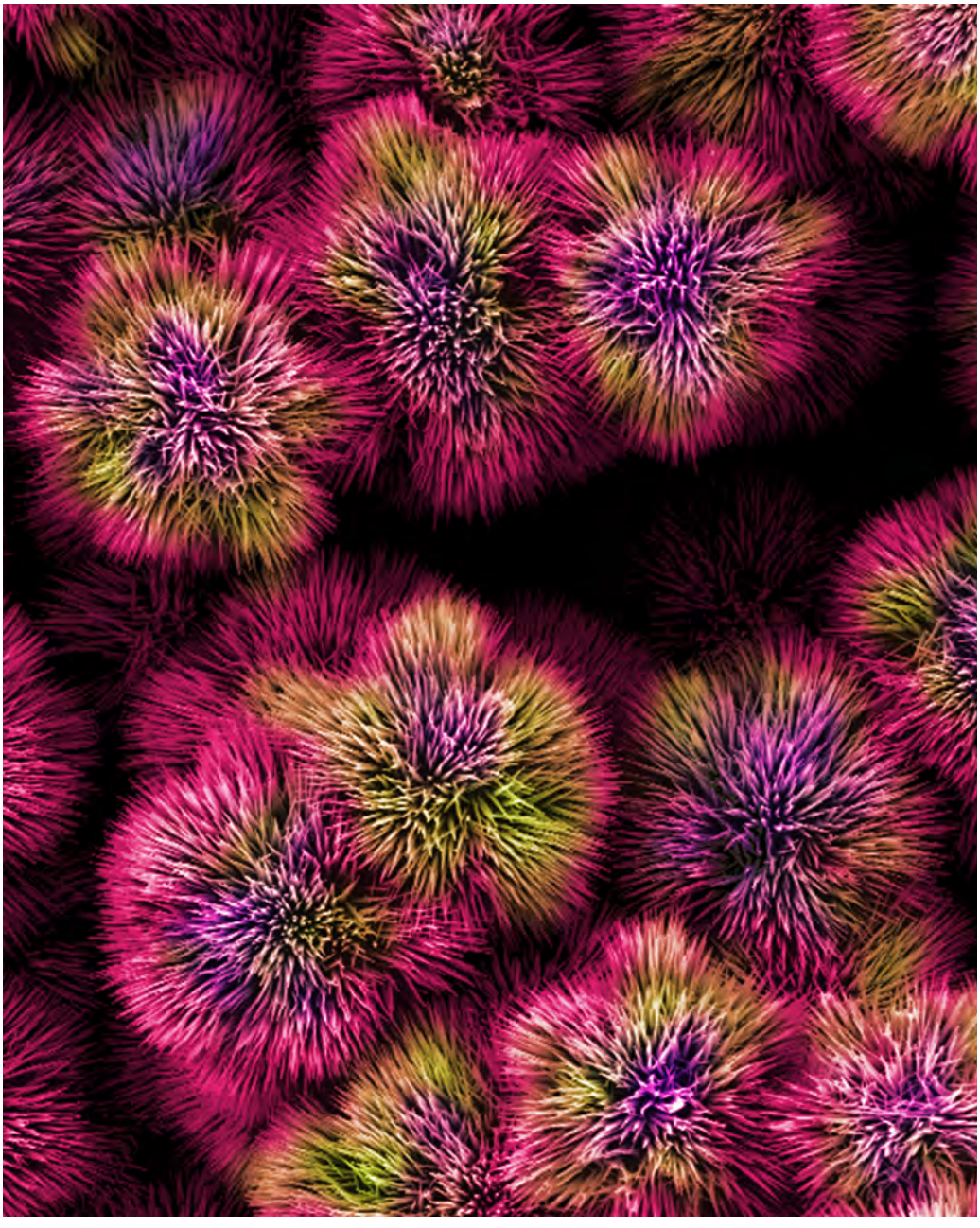
One of the first questions that you could ask me could be: Have you always imagined yourself in this field? My dream was always to control matter at its smallest scale. To be honest, my first idea was to study topics related to the universe, with a special inclination for space exploration. Despite this passion, the truth is that if we want to understand the huge blocks that make our universe, as for example galaxies, we can start by understanding how matter behaves at the opposite end, in its smallest scale, that is, the atomic one.

The truth is that, due to the novelty of the course when I first enrolled in University, without even one graduated student, my expectations were confusing, and I was not expecting what I ended up finding. The course has a very dynamic education dimension and in the first years we received general training that addressed all types of sciences, from Chemistry to Physics, through Mathematics. After this stage of academic preparation, each student can model a significant part of his or her academic profile in line with his or her future intentions, choosing topics of nanotechnology more connected to the area of Microelectronics, Life Sciences, Physics or others more focused on Materials Science.

It was also rewarding on a personal level the possibilities that the course opened, such as being an integral part of the organization of the Department of Materials Science Technology Days, or the ability to lead the organization of the IV National Meeting of Students of Materials, mind-opening due to the contact with the invited speakers, as well as students from around the country. Apart from all this, the fact that the course allows students, as is my case and others, still in their fourth or fifth year, to assist in the training of younger colleagues, is also in itself an experience of immeasurable value.

Finally I would like to talk about future expectations. I am currently able to undertake an internship at Collège de France in Paris during the summer, where I can develop knowledge and conduct research in quantum modeling, with the working group of the Nobel Prize winner in Physics in 2012, Serge Haroche, which leaves me with high expectations in extending this training to a masters thesis, into an area that has come to raise my interest in recent years.

Zinc oxide nano structures produced by precipitation method in paper substrates.



Students' Testimonials

Alexandre Grüninger de Oliveira

Master's Thesis Topic

Cellulose micro/nano fibers conformational effects probed by nematic liquid crystal droplets.

Topic

Soft matter science/Condensed matter

Was the Thesis project inline with your expectations?

Yes, I felt welcomed at the research group by all the researchers/post-docs/docs, as if I already belonged to the group. Additionally, whenever I had any question, I felt as if I could always interrupt whatever they were doing, and that everyone would made an effort to enlighten me, even when it wasn't really their area of expertise.

How do you think this will be relevant for your future career?

Yes, I truly believe so. This experience has given me new perspectives and has enhanced my scientific curiosity as well as intellectual and problem – solving capacities which will most certainly be of great help in any future work, whether scientific or not.

How valuable was the course for your Thesis work?

Again, most definitely it was valuable, however not directly. In my opinion more than learning the fundamentals of any subject, the course provides us tools and shapes our mind so as your critical sense towards any new subject. In that sense, the course was of great help.

What are your plans for the future?

Right now I am doing a internship at the Volkswagen group, as in a nearby future I would like to continue in this sector. However a job as a technological consultant/analyst seems very appealing to me, not only because each project is a new challenge, that enables you to gain knowledge in a broad different fields, but at the same time it may develop my horizons in the way that economic, human and technological factors are in a constant interplay with each other.

Paul Grey

Master's Thesis Topic

Development of Electrochromic Thin-Film Transistors on Flexible Substrate

Topic

Micro- and Nanoelectronics, Electrochromic Thin-Films

Was the Thesis project inline with your expectations?

The thesis and its containing theoretical and practical background met my expectations to a full extent. The beforehand proposed thesis work plan was rigorously followed with main focus on: Planning (theoretical background and transistor architecture design), Execution (Thin-film and Transistor fabrication and characterization) and finalized by one to two month of thesis writing. The process line provided me with a profound insight into fabrication and characterization techniques I hoped to learn. For device design Corel Draw was used, which gave me basic knowledge about this software and the involved steps from mask design until the device fabrication. The transistors were fabricated using photolithography and thin-film deposition techniques (sputtering) in clean-rooms, where I was able to experience working with sophisticated vacuum and deposition systems. The device characterization gave me great insight into fields such as semiconductor behavior, opto-electrochemical properties of electrochromic films and impedance spectroscopy of electrolytes, all of which I was expecting from the thesis description provided by my supervisor. Further I had the pleasure to work in a group of dedicated scientists, where exchange of ideas to push investigation is of the foremost interest. All in all, my Thesis project was well planned and executed and met my expectations.

How do you think this will be relevant for your future career?

In my opinion I had the opportunity to conduct my master thesis in one of Europe's leading institutions for nanoscience and nanotechnology; the CENIMAT. Being part of the I3N (Institute for Nanostructures, Nanomodelling and Nanofabrication) this institution offered me a great deal of know-how and resources in the field of micro and nanotechnology, which will be highly relevant for any future career opportunities. As the fabrication procedure for the electrochromic thin-film transistors involved deposition (magnetron sputter-

ing and e-beam) and patterning (Lithography) techniques in clean rooms and electrical characterizations with semiconductor analyzers I will be able to work in most companies requiring knowledge based on the area of nanopatterning and nanocharacterization. As I intend to continue to work in this area I believe that it was a fruitfull work. Not only regarding the practical tasks but also working under pressure with objectives to conclude and a deadline. This formed me not only as a scientist but also my personality and the way I look at a task at hand. Even during my free time I found myself thinking about my work and involved problems, which I never experienced during my degree. I think these are valuable properties obtained from this project, which definitely will be helpful for my future career.

How valuable was the course for your Thesis work?

Not only during my master thesis or my work as an assisting researcher I was able to work with sophisticated fabrication and characterization techniques, but also during the course of my whole degree in Micro- and Nanotechnology, as it is highly practical-oriented. It offers therefore a profound understanding on nanopatterning and nanocharacterization techniques. With core subjects like “Techniques for Materials Characterization”, “Materials Technology” “Microelectronics I, II and III” or “Nanofabrication and Characterization of Nanostructures”, I had the opportunity to get insight into characterization techniques, such as, SEM-FIB (Focused ion beam), Atomic Force Microscopy (AFM) or X-Ray Diffraction (XRD) and deposition techniques, such as, Chemical Vapor Depositions (CVDs), Physical Vapor Depositions (PVDs), Sputtering or even SEM-FIB assisted Gas injection system (GIS). I learned that it is advantageous having a critical viewpoint on processes and always to see problems from a different angle. Consequently I was able to quickly adapt to the work at hand during my Thesis project and provide various lines of thought. Apart from practical aspects such as the fabrication and characterization techniques mentioned above, the degree in Micro- and Nanotechnology provided me with valuable knowledge about theoretical background. For example subjects like “Semiconducting Materials”, “Physical Properties of Materials” and “Surfaces and Interfaces” taught me underlying properties of deposited thin-film semiconductor materials and additionally the ability to lead with arising discrepancies during characterization and their explanation, which require an understanding of the theoretical background. Another important factor was the adaption to new and unknown topics, which represents a big part of investigation on a novel area. In my opinion the degree in Micro- and Nanotechnology brought me a profound background and prepared me mentally for the conducted Thesis work.

What are your plans for the future?

As the field of Micro- and Nanotechnology is still a fairly young one I think some time needs to go by until enough companies will have been established to offer good working opportunities. That is why I have decided to firstly continue to work in my University for another semester or two and then try to find a place to either do my PhD and continue the academic live or to start working in a company or to even open my own company. My aim however is to continue in the area of micro- and nanoelectronics and semiconductor devices and maybe risk the step to spintronics for quantumcomputers. However you never know what the future has in store for you. Nanotechnology will soon change the world as we know it and we will see great things to come. It is wonderful being a part of it.

Joana Gonçalves Fernandes

Master’s Thesis Topic

Writing/erasing 3D micro and nano wrinkles in flexible elastomers for volatile organic compounds sensor

Was the Thesis project inline with your expectations?

Yes. I already had the chance to be part of several projects, yet my thesis project was the most challenging one. Not only because I was given full autonomy to develop the project, which enhanced my scientific critical sense and planning methods, but also due to the subject itself, as it was a completely new subject for me. As a result I got to learn more than I would if I had chosen a more traditional theme.

Looking back, I overcame many obstacles, I restarted over and over, re-planned and rescheduled, but in the end, it was worth it.

How do you think this will be relevant for your future career?

It has given me solid foundations in broad different areas, as well as it has opened my horizons and given me new perspectives not only towards the scientific phenomena involved but also in a more personal way. Basically, this course has provided the tools to build a dignified career!

How valuable was the course for your Thesis work?

As I told before, the subject I have chosen to my thesis work is not directly related to any subject I had. Yet, being this course multi-disciplinary, it sets your mind to deal with new approaches, to rethink and criticize your results and more importantly to connect different phenomena involved.

What are your plans for the future?

What about the future?! I haven’t decided yet… There are times when I want to pursue a scientific career, because it is if we were pushed to do so… to continue what we have already started. However there are other times when an engineering job at a factory seems more appealing and in some way more challenging.

Rita Pontes

Master’s Thesis Topic

Cellulose Nanorods in Liquid Crystalline Elastomers for Improved Actuators

Topic

Advanced Materials

Was the Thesis project inline with your expectations?

Regarding the initial goals defined with the supervisors, the thesis project suffered some adaptations due to time limitations. However, I am extremely satisfied with the final results, as a consequence of having achieved the expected goals. During these six months, I was given the opportunity to put together most of the concepts learned throughout my academical pathway, from the basics of materials' science to advanced techniques related to nanomanipulation of structures.

By having the B.Sc. in Materials Science, this Masters' project in Micro and Nanotechnology Engineering provided me a whole new perspective of the materials and opened a wide range of opportunities, regarding the use of old materials in new applications, with improved performances. Furthermore, it was highly interesting to find similar phenomena at different scales and also to understand the macroscopic consequences of structural modifications (at the nanoscale).

How do you think this will be relevant for your future career?

This work was certainly one of the biggest challenges during my journey as a student here. It made me understand the importance of the experimental planning, organization, previous protocol preparation and research concerning state of art in various perspectives.

On a day-to-day basis, this project has provided me new social skills, regarding the interpersonal relationships and shared experiences in the working place. The laboratory induces a spirit of mutual help which leads to a more pleasant atmosphere to discuss the obtained results and to compare with the ones obtained by co-workers. As once said by Ptolemy, "Out of the discussion comes light". This means that not only theoretical knowledge or hard work guarantee successful results. Despite being frequently underrated, also good social environment and optimistic partners are valuable contributions for promising results.

In addition, writing this thesis in a foreigner language provided me the opportunity to improve my language skills and competences in scientific writing, such as learning how to structure a scientific paper, describe experimental procedures and analyze the obtained results. There were, evidently, times of disappointment due to experimental failures and non-predicted obstacles. However, these drawbacks brought me the advantage of learning how to deal with unexpected problems in the real world.

In conclusion, this was a fruitful experience, which made me a more complete individual both at personal and professional level.

How valuable was the course for your Thesis work?

Throughout the course, I acquired many concepts about advanced materials and processing. This knowledge was extremely useful for my thesis work, as I had the opportunity to put in practice many of the subjects of the course, namely chemistry, micro and nanofabrication and liquid crystals, among others.

Overall, in this course we get the idea that changes imposed to materials' structures (at the atomic scale) will be reflected macroscopically, whether it is in mechanical properties or other behaviors, in the case of intelligent materials, for example.

What are your plans for the future?

All along my pathway, I have been really interested in academic research but owing to the lack of research grants, I am seriously considering a job in the industry, still in the research field, but with the main goal of gaining experience. Hopefully, in a few years I will return to scientific/academic research and even apply for a PhD.

Gonçalo José Pena Rodrigues

Master's Thesis Topic

Towards printed carbon nanotube transistors on paper substrates

Topic

Carbon Nanotubes

Was the Thesis project inline with your expectations?

My initial expectations were getting something new to give me the opportunity to write an article on the topic that was working on, in this case carbon nanotubes, this has not happened so what I have achieved was not inline with my expectations. Still I was not too discouraged because I knew that expectations were perhaps too high, since the theme of the nanotubes is something that is still not much explored in CENIMAT. Also, I did not expect that lab work would have to be so repetitive, which sometimes made it a bit more boring. The remaining work happened naturally, just according to what was already defined at start.

How do you think this will be relevant for your future career?

The importance of the thesis in a future career goes far beyond all theoretical content assimilated during its execution. The thesis gives every other sense of work autonomy, independence and encourages the development of critical thinking. In addition we have the privilege to work in optimum conditions, which provides us contact with cutting edge equipments. All these factors are certainly an asset when we are faced with company's real problems.

How valuable was the course for your Thesis work?

As my thesis was precisely in the materials and nanotechnology area, in which the course is based, the course gave me the essential foundations for understanding most phenomena in terms of the behavior of materials, and to know the most important characterizing techniques today. Beyond all the theoretical underlying, the course also provided me a sharp criticism capacity on scientific nature issues and a great approach with regard to the practical part of nanotechnology, ie, how nanotechnology "is done" nowadays. All this background was an asset in thesis, in addition to the rigor that was required in works, projects and reports that helped thesis to seem something much easier because we are already accustomed to "doing well".

What are your plans for the future?

My future plans are obviously trying to work in a company in nanotechnology area, but it will probably be for the long term, because it is a very specific area that I think is necessary to have some experience. For now doing PhD is pretty much out of choice, I would rather do a few internships in and outside Portugal to start gathering rhythm and experience in the world of work and maybe then get some steady job and eventually an MBA.

Daniel Correia de Matos

Master's Thesis Topic

Digital Microfluidics on Paper

Topic

Producing digital microfluidic devices with electrodes printed on paper using screen printing.

Was the Thesis project inline with your expectations?

Overall, yes. The kind of work I expected to do when I applied for the topic was more or less the one I ended up doing.

How do you think this will be relevant for your future career?

I have no idea whatsoever since I do not what my future career will be. But the laboratory experience will probably be useful either way.

How valuable was the course for your Thesis work?

Well the multidisciplinary characteristics of the course were very useful to deal with the varied subjects that this topic contains, producing a device through material science processes, keeping in mind both electronics issues and the final biodetection goal.

What are your plans for the future?

Internships abroad, in different countries, to gain international experience, both technical and cultural.

Miguel Ângelo Pereira Soares

Master's Thesis Topic

Control System for Actuation and Sensing in Digital Microfluidics Devices

Topic

Digital Microfluidics

Was the Thesis project inline with your expectations?

Yes, however, being this project part of a new area of study in our Department, it is only natural that there is always something that could be improved.

How do you think this will be relevant for your future career?

With this Thesis I was able to learn more about some software that I believe it will be crucial for future work, but also, the fact that for this Thesis I worked with a team, it improved my sense of teamwork.

How valuable was the course for your Thesis work?

Very. Not specifically because of the areas that we are introduced on along the course, but because of the wide diversity the course offers, I was able to look at this Thesis from various perspectives, which helped in its development.

What are your plans for the future?

For now, find a job. Afterwards we'll see. Perhaps founding a nanotechnology company.

Ana Paula Pinto Correia

Master's Thesis Topic

A Second-Order ΣΔ ADC using sputtered IGZO TFTs with multilayer dielectric

Topic

Transparent Electronics; A/D Converters

Was the Thesis project inline with your expectations?

My MSc Thesis project has completely fulfilled my expectations. It has been proven to be an ambitious and multidisciplinary work, being possible to integrate it in ongoing EU-funded and FCT-funded research projects. The initial project seemed very attractive and it has been challenging since its beginning as well as very time consuming. Furthermore, the proposed work was not previously explored and much can still be done in future work.

How do you think this will be relevant for your future career?

The thesis project defines, partially, our future specialized area of work. In this sense, and considering the interdisciplinary work developed, it increased my expectations to have a career in one of the areas covered in this work, or even in both. My supervisors also encouraged me to do this kind of work, since that currently, the research teams in the companies, are more multidisciplinary and with different know-how.

How valuable was the course for your Thesis work?

The course is based on a multidisciplinary structure. In fact, this structure allows an improvement in student education, acquiring a high preparation in different levels and areas. Considering that my MSc Thesis covers two areas, the background given during the course, was extremely relevant, to this thesis work. Furthermore, despite the component in materials science, the course presents a high incidence in electronics' area, which is adequate for this research area. In addition, the course offers a general overview on other areas, which give an excellent career prospect for working in research teams due to the multidisciplinary concept involved, which is fundamental in nowadays working environment.

What are your plans for the future?

The interdisciplinary work developed in my MSc Thesis brought me some opportunities. In fact, during it, a Research Trainee was proposed me in a reputable company

in Electronics' area. In this sense, my plans for the future include two possible scenarios. The first one is to continue the research work pursuing my PhD in the context of a project within the company or in academic environment. The second is the possibility to continue in the company as an employee, where the perspective to advance in the career, is also high and very attractive. It is noteworthy that, in both possibilities, the multidisciplinary concept is crucial to be successful.

Vasco Violante Rodrigues

Master's Thesis Topic

Digital Microfluidic devices: the role of the dielectric layer

Topic

Dielectrics; digital microfluidics; sensors.

Was the Thesis project inline with your expectations?

Yes, with the thesis project I had to overcome many obstacles, since this was a new topic to be developed within CENIMAT and so everything had to be designed and studied from square one. With this project I had the expectation of developing new functional devices, while learning a lot of different techniques and how to deal with unexpected problems, and at this stage I think that it is possible to consider that those expectations have been fulfilled.

How do you think this will be relevant for your future career?

The relevance of this project for my future career, in my understanding, can be separated in two ways: the project itself and the acquired skills developed throughout the project. The project itself may be relevant in case I want to proceed the studies in this field, or in areas related with sensors, for example. The acquired skills that were developed during the project, like the autonomous operation of some systems, but mainly the resolution of problems and the finding of new solutions, may play an important role in my future career.

How valuable was the course for your Thesis work?

The course was very helpful for the development of my thesis project, since it has provided me with some essential knowledge on sensors, biosensors, materials and applications, to refer some examples. However, the course provided me not only theoretical knowledge, but also laboratorial and cleanroom skills, that were essential for the operation of some systems, since when I got to operate them I already knew the basic operation and theoretical principles. This was more evident when considering the lithography processes that I had to perform, which would have been very hard to do without the basis given by the microelectronics subjects.

What are your plans for the future?

At this moment, my plans for the future consist in working abroad, preferably within Europe, in the department of research and development of companies working in a range of fields, like aviation, motorized vehicles, electronics, energy solutions, semiconductors, to refer some examples. It is my belief that the possibility of working abroad would grant me some essential knowledge so one day I can apply some of those acquired skills in Portugal.

Pedro de Abreu Avó Baião

Master's Thesis Topic

Nanostructuring silicon probes via electrodeposition: Characterization of electrode coatings for acute in vivo neural recordings

Topic

Nanotechnology applied for neurosciences

Was the Thesis project inline with your expectations?

Indeed it was. During summer vacation, I started to think that I wanted a project completely different from those that were already available for the students to work on for their thesis. With that in mind and with the fact that I completely fell in love in the all the technology courses applied to biology I decided why not try something different. I was then given the chance to work at the Champalimaud Center of the Unknown (CCU) on an area that was completely oblivious to me. I had no experience in neuroscience (besides a 1 semester neurobiology course that I took at FCT) so one might say that I had a lot to learn. The project exceeded my expectations! Managed to apply my nanotechnology skills to a different area, worked with a fantastic team at the CCU, learned many things I had never heard of before and got to experience a total different world from what I was used to.

How do you think this will be relevant for your future career?

Even though I'm still not sure if I'll continue working in this particular area, this work allowed me to expand my horizons. At the moment, I'm still deciding what I want to do with my future career but fundamental doubts concerning it have been answered through this work. I took a big risk by working in an area I had no knowledge about and I loved the challenge. With that said, even If I don't get a chance to work on this particular topic at least I won't be afraid to challenge myself and take a leap to different areas I have never worked in. It does involve a lot of headaches, doubts and specially a lot of studying trying to keep up with all the new information. But, the feeling you get by challenging yourself and succeeding is completely worth any trouble along the way.

How valuable was the course for your Thesis work?

On my first three years in college I was finishing my bachelors in materials science and only then did I join the last 2 years of the masters for micro and nanotechnology. Overall, yes, the course was really valuable for my thesis project. For the work in case, I would say that, for example, nanoparticle synthesis had already been performed on different courses during my masters but a lot of the work/experiences I performed were not taught during the course (concerning electrochemistry). That would be expected since I was working and applying my knowledge in a different area. But throughout the years I met different professors, post-doc and phD students that gladly helped me with their expertise on the different topics I had to work on. Yes, I didn't have any specific courses concerning some of my work but, I always had someone to help me and explain If I was proceeding correctly or if I should change any experiments I was performing. That is the most valuable asset of this course: we

have experts in different areas that will gladly help and teach anything you need for your work to be as successful as possible.

What are your plans for the future?

As of now, I would like to do an internship on a tech based enterprise to see how it differs from the academic world. My mind is filled with different challenges I one day would like to see achieved. Working in the most technologically advanced countries is definitely the number one priority for me (even if it would only be for a few months): Seoul or Busan (South Korea), Tokyo (Japan), Singapore (Singapore), Shanghai or Hong Kong (China). Working in these mega-developed cities is definitely a dream for anyone who loves technology and wants to pursue a career developing even more advanced and high-tech devices.

Though my primary concerns for the moment are working for an enterprise, someday I would also like to have the change to finish a PhD. Always thought that after my masters that would be the appropriate choice but after having studied my entire life, I want to do something different, I want to experience new worlds, different cultures and have different responsibilities. That way I can make my final decision to whether follow an academic career or try to succeed in the business world.

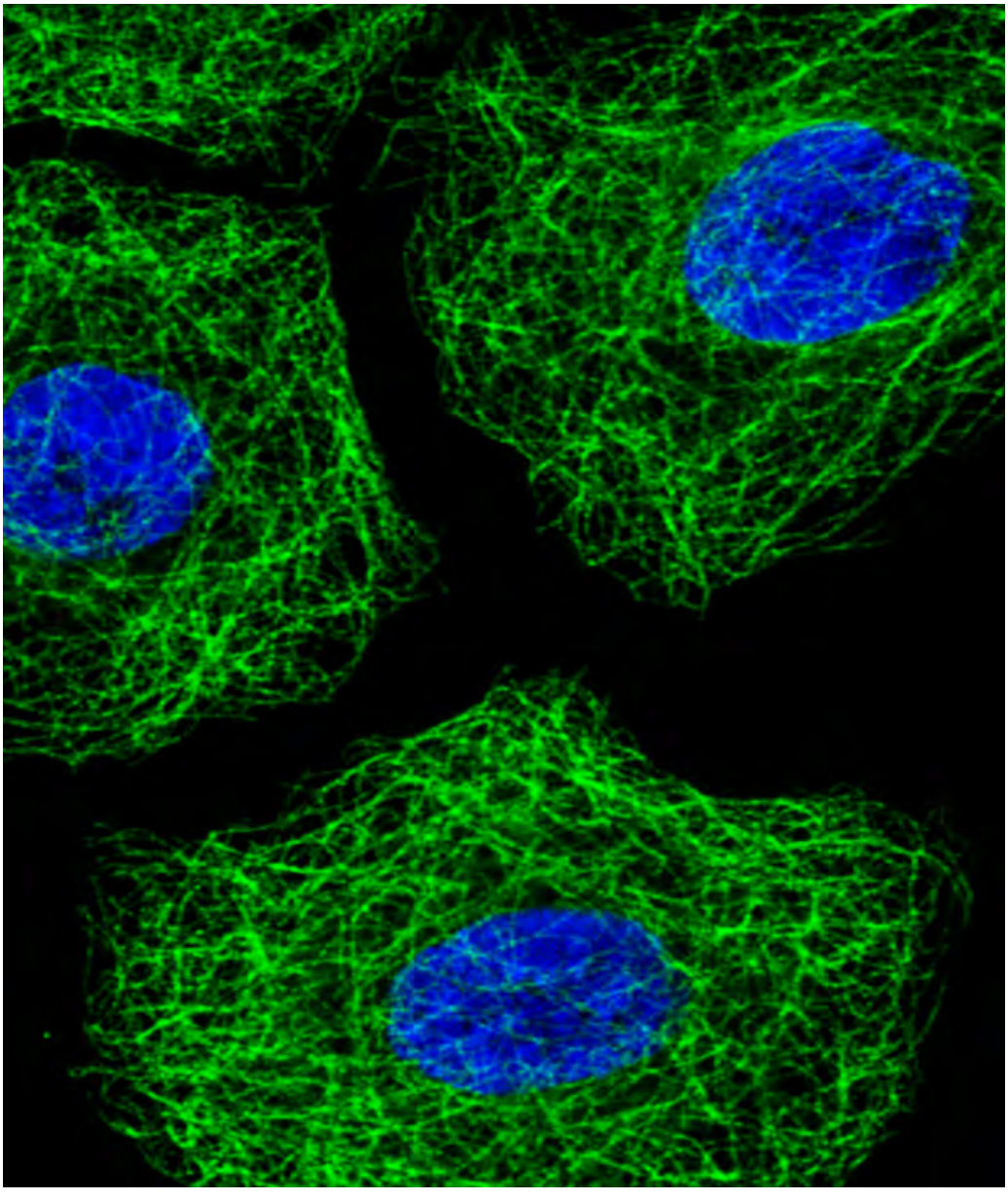
INTERNATIONAL Dimension: Aarhus EU Declaration 2012, bringing together Academia, Industry and European Commission

Thesis of the First Graduates in the MSc in Micro and Nanotechnologies

The themes of the thesis by the first graduates of MIEMN are listed below, followed by the students testimony as well as the prospects for future work and the comfort they feel by the training given to them.

“Cellulose Nanorods in Liquid Crystalline Elastomers for Improved Actuators Nano”	Rita Valério Pontes
“Writing/erasing 3D micro and nano wrinkles in flexible elastomers for volatile organic compounds sensor”	Joana Fernandes
“Cellulose micro/nano fibers conformational effects probed by nematic liquid crystal droplets”	Alexandre Grüninger de Oliveira
“Nanostructuring silicon probes via electrodeposition: Characterization of electrode coatings for acute in vivo neural recordings”	Pedro de Abreu Baião
“Digital Microfluidic devices: the role of the dielectric layer“	Vasco Alexandre Rodrigues
“Digital Microfluidics on Paper”	Daniel Correia de Matos
“Control System for Actuation and Sensing in Digital Microfluidics Devices”	Miguel Pereira Soares
“A Second-Order ΣΔ ADC using sputtered IGZO TFTs with multilayer dielectric”	Ana Paula Correia
“Towards printed carbon nanotube transistors on paper substrates”	Gonçalo Pena Rodrigues
“Development of Electrochromic Thin-Film Transistors on Flexible Substrate”	Paul Grey

Confocal immunofluorescence microscopy of lung cancer cells.



Example of International Cooperation: BIOAGE srl. BIOelectronics & Advanced Genomic Engineering

BioAge is an Italian Hi-Tech SME that develops and produces measurement instruments based on sensors and biosensors, systems used in gas mixing & control and real time environmental monitoring systems. The company provides also services in electronic designing, starting from the customer's technical specification.

The company develops several kinds of transducers. BioAge produces highly accurate quartz crystal microbalances (QCM) systems, developed for piezoelectric gravimetry in the ng-pg range. Such instruments are commonly used by research centres and universities, the application fields is extremely large and thanks to their extreme accuracy and sensitivity our instruments are employed in the nano-technology basic research too. BioAge designs, produces and installs infrasonic monitoring systems, used to monitor in real time the volcanic activity, in Italy the Italian Civil Defence uses our systems to monitor the explosive activity of Etna volcano (Etna is the bigger active European volcano). BioAge has designed and realized a real-time marine monitoring system that has been installed near the Stromboli island (it is a volcanic island), this system is used by the Italian Civil Defence as tsunami real time early warning alarm. The scientific research is one of the main interest of BioAge that is involved in EC FP7 & H2020 research projects. Lot-Oriel (http://www.lot-oriel.com) is a distributor of the BioAge instruments.

European Research Projects: BioAge, thanks to high expertise in the electronic field, has been involved in the participation of several EC research projects:

- E-STARS - GA - June 2008 / May 2011: "Efficient Smart sysTems with enhAnched eneRgy Storage";
- SMART-EC - GA - Sept 2010 / Aug 2014: "Heterogeneous integration of autonomous smart films based on electrochromic transistors";
- APPLE - GA - June 2011 / May 2015: "Autonomous Printed Paper products for functional Labels and Electronics";
- APPOLO - GA - Oct 2013 / Sept 2017: "Hub of Application Laboratories for Equipment Assessment in Laser Based Manufacturing";
- i-FLEXIS - GA - Oct 2013 / Sept 2016: "Integrated flexible photonic sensor system for a large spectrum of applications: from health to security".

Mr. Stefano Sinopoli – Technical Director and

Stefano Sinopoli

co-owner: Dr. Ing. Electronic Engineering, University La Sapienza of Rome. He worked at :

- "Texas Instruments" in Avezzano, where he was involved in plasma etching process;
- "Polo Nazionale Bioelettronica" in Marciana Marina (LI), in satellite multi-spectral images;
- "Technobiochip scarl" in Marciana (LI), where was responsible of engineering team;
- "Centro di Eccellenza Optronica" in Florence, where was responsible of engineering team;
- "BioAge", currently he is responsible of designing of new Hi-Tec instruments and micro systems;

He was the responsible of the development of various innovative instruments and devices like: real time infrasonic monitoring systems, real time tsunami early warning alarm system, quartz micro balance measurement instruments, capacitive sensors, LVDT measurement systems.

He has developed a very innovative capacitive system that is employed in proteomics and genomics and that has been patented in Italy and in Europe, and that has won a prestigious prize:

- Italian Patent N. RM2001A000774, 28/12/2001, Cocco M., Pighini M., Sinopoli S. (2001);
- European Patent Extension in 20/12/2002, Patent n. 02806391.5 – 2204 – IT0200818.

In 3/5/2004 this patent has won the "OSCAR MASI 2003 PRIZE" from AIRI board (Italian Association for Industrial Research) as the best industrial innovation of the year.

Collaboration with UNINOVA: Since 2011 our company has a strict and fruitful collaboration with the UNIVOVA institute. A student from UNINOVA, in July 2014, spent one month in our company. During this period he had a training in designing electronics circuits to be printed on paper, it has been a fruitful training, and the designing activities were used in the APPLE (GA-262782) research project funded by the FP7 European Community program. The student from UNINOVA had a good opportunity to see how to work in a hi-tech private company, moreover he was very interested about the activities related to the administration of a private company, so for this reason we have explained to him the main aspects related to the founding of a new company and how to manage it. This experience was very important both for our company as for the student, and for this reason we plan to have another experience like this with the UNINOVA institute.

Lamezia Terme (Italy) 23 / October / 2014

BioAge Technical Director

Mr. Stefano Sinopoli

Teaching Staff

Materials Science and Engineering

Rodrigo Ferrão de Paiva Martins

Position: Full Professor in Materials Science and Engineering since 2002.

Expertise field: Semiconductor Materials, Microelectronics; Optoelectronics, Advanced Functional Electronic Materials; Nano/Micro-process technologies.

N° of citations: 7500

H impact factor: 42

5 most relevant papers/books/book chapters from 2008 to 2014

1. R. Martins, L. Pereira, E. Fortunato, SID 2014 Frontline Technology: The Future Is Paper Based, p20-24;

2. R. Martins, Pooling European Materials, interview, Science & Technology 10 (2014) pp. 106-108.

3. R. Martins, Europe welcomes Brazilian spirit, Science Impact, IOP, vol.5 (2014), p.9.

4. R. Martins, A. Ahnood, N. Correia, L. Pereira, R. Barros, P. Barquinha, R. Costa, I. Ferreira, A. Nathan, E. Fortunato, Recyclable, Flexible, Low-Power Oxide Electronics, Advanced Functional Materials 23 (17) (2013), pp. 2153-2161.

5. Book: Martins R., Fortunato E., Barquinha P., Pereira L. (2012). Transparent Oxide Electronics: From Materials to Devices. Wiley, ISBN: 978-0-470-68373-6

Course lectures

Instrumentation Techniques; Initiation to Thesis Dissertation; Materials for Energy; Optoelectronics.

Relevant positions taken at National and International levels

Head of Materials Science Department of FCT-UNL;

Immediate past President of E-MRS; President of E-MRS Senate;

Chair of the Committee of Global Leadership and Service Award of the International Union of Materials Research Societies, IUMRS;

Member of the Expert Advisory Board of the European program HORIZON 2020, for the topic of Advanced Materials, Nanotechnologies, Biotechnologies and manufacturing;

Member of the International Advisory Board of the Advanced Electronics Materials Journal, from Wiley;

Member of the Nomination Committee of MRS-USA;

Member of the International Advisory board of Strategic Initiative Materials, a Flanders industry initiative financed by the Flemish Government;

Member of the Steering Committee of MatVal, a value chain of materials research and innovation and of European Technology Platform for Advanced Engineering Materials and Technologies, EuMat;

Member of the Steering Committee of the Joint Innovation Centre for Advanced Material, Sino-Portuguese, established in March 2013;

Member of the Administration Board of Alliance for Materials, a global European Platform; Member of the Steering Committee of Energy Materials Industry Research Initiative, EMIRI, a European Platform targeting to be a Public Private Partnership structure;

Member of the Portuguese Academy of Engineering.

Awards received

Scientific Prize of Cidade de Almada, 1st edition with work Nanotechnologies and Nanomaterials @FCT-UNL, a window of opportunities opened to the world;

Prize Innovation with the work solar tiles, Energy Live Expo, Lisbon;

Doctor Honoris Causa by University of Galaty, Romania;

Best of PSS 2011, top 12 by Wiley with the paper: Where science fiction meets reality? With oxide semiconductors!

Green awards, honour Research and Innovation award with the work on paper battery.

Portuguese Science and Technology award 2010/2011, given by the district 1960 of the International Rotary Foundation;

The best scientific work given by Korean Industry of Display Society (KIDS), Sept. 2010: work “Paper Memory TFT”, published in Journal of Information Display, 10 (4), 80-89 (2009)

Printed Electronics USA 2009 Academic R&D award, Dec 1-4 2009, S. Jose, CA California (IdTechEx): paper TFT.

Green awards, 1st prize Research and Innovation award with the work on the paper transistor;

Honours member of the Rotary Club of Almada;

Scientific Professional of the Year 2008, Rotary Club of Almada;

Paul Harris gold medal, for scientific outstanding, International Rotary Foundation;

Prize for Scientific Excellence given by the Portuguese Science Foundation.

Participation in national and international education networks

Member of the External International Board of the PhD Program in Materials in UDJG University (University of Galati), Romania; Member of the External Quality Advisory Board of the International Master Program in Functional Advanced Materials & Engineering funded by the ERASMUS MUNDUS Program of the European Union, offered in English by 7 universities of 4 different countries (Grenoble INP and U. Bordeaux in France, U. Augsburg and TU Darmstadt in Germany, U. C. Louvain and U. Liège in Belgium, and U. Aveiro in Portugal), FAME; Coordinator of the Portuguese PhD program in Advanced Materials and Processing (AdvaMTech), involving 7 Portuguese public Universities and 12 Research Centres, recently approved by FCT, to start on January 2014

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

Name: Filipe Duarte Martins da Silva Campos

Course: Mestrado em Engenharia de Materiais

MSc Thesis Theme: "Problem identifications and development of a customized DDR2 RDIMM module for a special customer"

Date: 11-03-2010

Name: Ana Isabel Leandro Alentejano

Course: Mestrado em Integrado Engenharia de Materiais

MSc Thesis Theme: "Implementação de processos de melhoria com base em ferramentas da qualidade para a otimização de sistemas de medição e monitorização no sector automóvel e de sistemas operacionais e de segurança no sector do transporte vertical"

Date: 16-11-2012

Name: Hugo António Afonso Alves

Course: Mestrado em Integrado Engenharia de Materiais

MSc Thesis Theme: "Gestão de projectos em investigação e desenvolvimento de encapsulamento de semicondutores"

Date: 29-11-2013

Name: Luís Miguel Nunes Pereira

Course: Engenharia de Materiais

Specialty: Microelectrónica e Optoelectrónica

PhD Thesis Theme: "Produção e caracterização de silício policristalino produzido e sua aplicação e transístores de filme fino"

Date: 29-09-2008

Name: Luís Miguel Tavares Fernandes

Course: Engenharia de Materiais

Specialty: Microelectrónica e Optoelectrónica

PhD Thesis Theme: "Desenvolvimento de um sensor de imagem em tecnologia de silício amorfo de grande área"

Date: 29-04-2009

Name: Pedro Miguel Cândido Barquinha

Course: Programa Doutoral em Nanotecnologias e Nanociências

PhD Thesis Theme: "Transparent Oxide Thin-Film Transistors: Production, Characterization and Integration"

Date: 07-05-2010

Name: Leonardo Bione da Silva

Course: Programa Doutoral em Nanotecnologias e Nanociências

PhD Thesis Theme: "Desenvolvimento de um novo sistema portátil de detecção de sequências específicas de DNA/RNA a partir de nanosondas de ouro com integração de sensores ópticos baseados na tecnologia do silício nanocristalino"

Date: 18-11-2010

Name: Ioan Bogdan Diaconu

Course: Programa Doutoral em Nanotecnologias e Nanociências

PhD Thesis Theme: "Multifunctional semiconductor films with applications in optoelectronic and photovoltaic devices"

Date: 16-12-2011

Name: Vitor Manuel Loureiro Figueiredo

Course: Programa Doutoral em Nanotecnologias e Nanociências

PhD Thesis Theme: "Development of copper and nickel based oxide thin films: design and fabrication of thin-film Transistors"

Date: 17-12-2012

Name: Pawel Jerzy Wójcik

Course: Programa Doutoral em Nanotecnologias e Nanociências

PhD Thesis Theme: "Printable organic and inorganic materials for flexible electrochemical devices"

Date: 13-12-2013

Name: Iwona Anna Bernacka-Wójcik

Course: Programa Doutoral em Nanotecnologias e Nanociências

PhD Thesis Theme: "Design and Development of a microfluidic plataform for use with colorimetric gold nanoprobe assays"

Date: 06-10-2014

Name: Javier Contreras Aparicio

Course: Programa Doutoral em Ciência e Engenharia de Materiais

PhD Thesis Theme: "Amorphous Silicon 3D Sensors Apllied to Object Detection"

Date: 07-10-2014

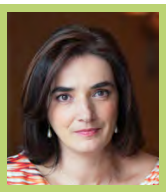
Name: Ana Raquel Xarouco de Barros

Course: Programa Doutoral em Nanotecnologias e Nanociências

PhD Thesis Theme: " Development of p-type oxide semiconductors based on tin oxide and its alloys: application to thin film transistors"

Date: 06-11-2014

Elvira Maria Correia Fortunato



Staff member since: 1987

Expertise field: Microelectronics; Transparent Electronics; Nanotechnologies; Biosensors; Thin Film Transistors; Chromogenic Materials and Devices; Metal Oxide (Semi) Conductors

Nº of citations: 10 273 (Google Scholar October 2014)

H impact factor: 48 (Google Scholar October 2014)

5 most relevant papers/books/book chapters from 2008 to 2014

Book

P. Barquinha, R. Martins, L. Pereira and E. Fortunato, Transparent Oxide Electronics: From Materials to Devices. West Sussex: Wiley & Sons (March 2012). ISBN 9780470683736.

Papers

E. Fortunato, P. Barquinha, and R. Martins, "Oxide Semiconductor Thin-Film Transistors: A Review of Recent Advances," Advanced Materials, vol. 24, pp. 2945-2986, Jun 2012.

L. Santos, J. P. Neto, A. Crespo, D. Nunes, N. Costa, I. M. Fonseca, P. Barquinha, L. Pereira, J. Silva, R. Martins, E. Fortunato, ACS Appl. Mater. Interfaces 2014, DOI 10.1021/am501724h.

Pimentel, A.; Nunes, D.; Duarte, P.; Rodrigues, J.; Costa, F. M.; Monteiro, T.; Martins, R.; Fortunato, E. Synthesis of Long ZnO Nanorods under Microwave Irradiation or Conventional Heating. The Journal of Physical Chemistry C 2014, 118, 14629–14639.

M. N. Costa, B. Veigas, J. M. Jacob, D. S. Santos, J. Gomes, P. V Baptista, R. Martins, J. Inácio, E. Fortunato, Nanotechnology 2014, 25, 094006.

Course lectures

Introduction to Micro and Nanotechnologies (MIENM)

Microelectronics (MIEM) Microelectronics I (MIEMN)

Micro and Nanofabrication Technologies (MIEF)

Seminar in Nanotechnology and Nanosciences I and II (PDNN)

Nanostructured Materials (PDNN)

Relevant positions taken at National and International levels

CENIMAT Director since 1998

I3N Director since 2013

Deputy Director of FCT-UNL since 2014

Member of the Portuguese Academy Engineering Council since 2008.

Member of the Scientific Council of Francisco Manuel dos Santos Foundation, since 2011.

Member of the Portuguese Presidency House Member of the Committee of Portuguese Orders of Honour since 2011.

Member of the Curators Council of Luso-American Foundation since 2013.

Member of the Social Council of Faculty of Engineering and Technology of Lusiada University.

Representative of the Research Centers of FCT-UNL at the Scientific Council since 2006.

Member of the Scientific Council for Exact Sciences and Engineering from FCT-MCTES (2008-2012)

Member of the Connect Advisory Forum from DG CONNECT-F3, European Commission – DG/RTD.

Member of the Review Panel on the Graphene Flagship, European Commission, FET Flagships – Excellence in Science.

Associate Editor of Rapid Research Letters Physica Status Solidi (Wiley)

Co-Editor of Europhysics Letters

Associate Editor of Applied Surface Science

Awards received

Portuguese Science Foundation (FCT-MCTES) the prize for Scientific Excellence in 2005;

Gold Medal (honorary citizen) from the Municipality of Almada in 2007;

Professional of the year 2008, given by the Rotary Foundation;

Prize "Seeds of Science" in the field of Science and Engineering by "Ciência Hoje", 2008.

Professional of the Year 2008, by the Rotary Club of Costa de Caparica, 2008.

Innovation 2008 prize, from Exame Informática magazine.

First place in the area of Physical Sciences and Engineering (PE), sub-area Products and Processes Engineering (PE) during the first call launched by the European Research Council in 2008 for Advanced Grants. The amount of the grant was 2 250 000€.

Portuguese Award "Seeds of Science" 2009;

Innovation Award for 2008 from a TIC Magazine;

Personality of the Year 2009 from the Portuguese Multimedia Association;

1st place "Green Awards" with Paper-e: green electronics for the future;

IDTechEx Printed Electronics USA 2009 Academic R&D award;

Honoris Causa degree from Galati University, Romania, 2009

Order of Infante D. Henrique, degree: "grande oficial", attributed by the President of The Portuguese Republic, during the solemn Ceremony Commemorative of the National day of Portugal, Camões and the Portuguese Communities, held in Faro, 10 June 2010.

Gold Mercury Sustainability Award, Category: Personality of the Year for the work: Transparent Electronics, 2010.

FEMINA prize in the category of Scientific Merit, 2010.

Scientific Prize of Cidade de Almada, 1st edition with work Nanotechnologies and Nanomaterials @FCT-UNL, a window of opportunities opened to the world, 2012

Prize Green Awards, Lab-on-Paper, 2012

Gold Medal from the Municipality of Alcanena in 2014

Participation in national and international education networks

Graduate School Leipzig School of Natural Sciences – Building with Molecules and Nano-objects BuildMoNa, Universität Leipzig.

ERASMUS – IP Programme "Transparent Electronics: From Materials & Devices to Devices & Systems. Coordinated by University Crete. Partners: New University of Lisbon; Impe-

rial College London; University Erlangen-Nuremberg; Ecole des Mines de Saint-Etienne; University of Bucharest; University College Cork.

PhD Program on Biomaterials Engineering, UFLA – Brasil.

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

Only PhDs with Industry or International partnerships:

E. Queiroz, "Study of interlayer effect", USP and UNL (2008)

G. Gonçalves, "Development of new TCOs for flexible OLED displays", UNL and USP (2011)

A. Pimentel, "Study of MnO2 coverage on Ta capacitors with high CV powders", UNL and KEMET (2011)

R. Branquinho, "Chemical and biological amorphous oxide ISFETs and EIS for biomolecular recognition", UNL and INL (2012)

L. Dartu, "Studies regarding anionic clays and the derived mixed oxides", Technical Univ.of Iasi and UNL (2013)

A. Danciu, "Production and characterization of zinc oxide nanowires", Galati University and UNL (2013)

J. Deuermeier, "Investigation of p-type conduction in copper oxide based thin films" UNL and Darmstad University (running)

K. Reis, "Development of new cellulose based material for food packaging", UFLA and UNL (running).

Only MScs with Industry or International partnerships:

P. Maczewski, "Characterization of oxide TFTs", Tech. Univ. Lodz (2008)

A. Valentin Tecaru, "Characterization of tin oxide for TCOs", Univ. Galati (2009)

Anca-Ionela Danciu, "Characterization of zinc oxide thin films", Univ. Galati (2009)

C. Lutz, "Transparent electronics for ICs", Konstanz University (2011)

P. Butti, "Ink-Jet of inorganic materials", ETH Zurich (2011)

M. Lee, "Transparent electronics for biosensors" Korea University (2012)

C. Pontes, "Development of an alcohol sensor using the lab-on-paper technology", USP (2013)

R. Rabelo, "Development of glucose sensors using the lab-on-paper technology", USP (2013)

Isabel Maria Mercês Ferreira

Staff member since: 1989

Expertise field: Oxides Thin Film Thermoelectric Materials; Plasmonics for nanocrystalline/amorphous silicon solar cells; Solid state batteries on paper and bio-batteries; Graphene supercapacitors; Development of organic semiconductors based on micro/nano fibres; Sintering of nano-oxides for electronics applications; Nano-toxicology; Magnetic nanoparticles for hyperthermia.

Nº of citations: 2584

H impact factor: 26

5 most relevant papers/books/book chapters from 2008 to 2014

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 - Royal Society of Chemistry. IF=6.101

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; IF=2.927

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=11.65

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 (26) 5 (2011) 2742-2745. IF= 5.389

Ferreira, I; Bras, B; Martins, JI; Correia, N; Barquinha, P; Fortunato, E; Martins, R. Solid-state paper batteries for controlling paper transistors, Electrochimica Acta (56) 3 (2011) 1099-1105. IF=4.088

Books /Books Chapter

Nanofibers and nanoparticles in biomedical applications, A. Baptista; P. Soares; I. Ferreira; J.P. Borges; Bioengineered Nanomaterials (2013) 93, CRC Press.

Cellulose-based bioelectronic devices, Cellulose-Medical, A. Baptista; I. Ferreira; J.P. Borges; Pharmaceutical and Electronic Applications (2013) InTech.

Course lectures

Semiconductor Materials; Materials for Energy Conversion and Conservation; Electronic organic materials; Surfaces and Interfaces.

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

PhD Students

Paula Soares, Nanoparticles for hyperthermia, 3th year FCT, Co-supervisior

Nuno Neves, Nanopowders for metal oxide targets, Thesis writing QREN/INNOVNANO, supervisior

Ana Baptista, Bio-Batteries with electrospun fibres, Thesis writing, FCT supervisior

Javier Contreras, 3d sensor for objects recognition, Waiting the defence of thesis, FCT supervisor

Carlos Teixeira, Polymer hybrid solar cells, 3th year, Self-expanses supervisor

H. Orvalho, Smart Windows (in collaboration with Fraunhofer Institute) 3th year, German grant, Co-supervisor

MSc Students

Ana Raquel Vitorino, Deposição por pulverização de filmes finos poliméricos à base de silanos. Desenvolvimento de soluções inovadoras de acoplamento célula-prisma" 2010/2011 MAGPOWER

Hugo Fernandes , Estudo das características térmicas de um concentrador fotovoltaico (investigação de métodos alternativos de aproveitamento da energia solar térmica , 2010/2011 MAGPOWER

Maria Helena Figueiredo Godinho

Staff member since: 1983

Expertise field: Liquid Crystals and Polymers

Nº of citations: 954

H impact factor: 17

5 most relevant papers/books/book chapters from 2008 to 2014

"Helical twisting of electrospun liquid crystalline cellulose micro- and nanofibers", J.P. Canejo, J.P. Borges, M.H. Godinho, P. Brogueira, P.I.C. Teixeira, E.M. Terentjev, Advanced Materials, 20(24), 4821, 2008 (corresponding author)

"Hierarchical wrinkling on elastomeric Janus spheres" A.C. Trindade, J.P. Canejo, P. Patricio, P. Brogueira, P.I. Teixeira, M.H. Godinho, Journal of Materials Chemistry, 22(41), 22044, 2012 (corresponding author)

"Water-Based Cellulose Liquid Crystal System Investigated by Rheo-NMR" G. Yong, P.L. Almeida, G.M. Feio, J.L. Figueirinhas, M.H. Godinho, Macromolecules, 46(11), 4296, 2013 (corresponding author)

"A cellulose liquid crystal motor: a steam engine of the second kind" Y. Geng, P.L. Almeida, S.N. Fernandes, C. Cheng, P. Palffy-Muhoray, M.H. Godinho, Scientific Reports, 3 Article Number:1028 DOI: 10.1038/srep01028, 2013 (corresponding author)

"Liquid crystal necklaces: cholesteric drops threaded by thin cellulose fibres" Y. Geng, D. Sec, P.L. Almeida, O.D. Lavrentovich, S. Zumer, M.H. Godinho, Soft Matter, 9(33), 7928, 2013 (cover) (corresponding author)

Course lectures

Liquid Crystals and Applications, Polymer Chemistry, Cellulosic Materials, Polymer Physics

Participation in national and international education networks

Collaborative Research in Europe on Liquid Crystals (CRELIC-IRES) – NSF 04-036 (2008-2009) (PI: Antal Jákli, Associate Professor of Chemical Physics in the Liquid Crystal Institute of Kent State University; Participants - Department of Materials Sciences of FCT/UNL, Portugal (host: Helena Godinho); Institute of Experimental Physics, Otto-von-Guericke University of Magdeburg Germany (host: Professor Ralf Stanarius); and Research Institute for Solid State Physics and Optics of the Hungarian Academy of Sciences in Budapest, Hungary (host: Prof. Istvan Jánossy)

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

PhD last 5 years:

Supervisor (co-supervisor P.L. Almeida) Yong Geng "Electro-optical light scattering shutter using electrospun cellulosic and spider silk based nano and microfibers" (SFRH/BD/63574/2009) (September 2013)

Supervisor João Paulo Godinho Canejo "Cellulose nanocrystals: self-assembly and nanostructured composites" (bolsa SFRH/BD/37958/2007) (February 2012)

Co-supervisor (supervisor A. Figueiredo Neto, USP, Brasil,) Cleidilane de Oliveira Sena "Elastómeros Dopados com Ferrofluidos"(Grant GRICES/CAPES) (2011)

Co-Supervisor (supervisor Fernão Vístulo de Abreu, Univ. Aveiro) Pedro Silva "Development of cellulose-based materials with pseudo-knots driven physical properties" (SFRH/BD/79369/2011)

Co-Supervisor (supervisor José Paulo Farinha (IST)) Ana Catarina Santos "Smart Polymer Fibers for Stem Cell Cultivation" (PD/00294/2012; AdvaMTech)

Carlos Dias

Staff member since: Oct 1982

Expertise field: dielectrics, piezoelectrics, pyroelectrics and ferroelectrics.

Nº of citations: 633

H impact factor: 10

5 most relevant papers/books/book chapters from 2008 to 2014

C. J. Dias, Applied Physics Letters 103 (2013).

R. Mauricio, C. J. Dias, N. Jubilado, and F. Santana, Environmental Monitoring and Assessment 185, 8125 (2013).

E. G. Merino, P. D. Neves, I. M. Fonseca, F. Danéde, A. Idrissi, C. J. Dias, M. Dionísio, and N. T. Correia, Journal of Physical Chemistry C 117, 21516 (2013).

S. S. Teixeira, C. J. Dias, M. Dionisio, and L. C. Costa, Polymer International 62, 1744 (2013).

T. Carvalho, V. Augusto, A. R. Bras, N. M. T. Lourenco, C. A. M. Afonso, S. Barreiros, N. T. Correia, P. Vidinha, E. J. Cabrita, C. J. Dias, M. Dionisio, and B. Roling, Journal of Physical Chemistry B 116, 2664 (2012).

Course lectures

Physical Properties of Materials

Characterization Techniques and Non-destructive Testing

Applied Acoustics

Acoustics and Audiology

General Physics

PIPP - Introductory Program for Professional Practice

Preparation for MSc Dissertation in Materials Science

Sensors: Materials and Applications

Participation in national and international education networks

ERASMUS coordinator for Dept. Materials Science

Responsible for ERASMUS bilateral agreements with universities from Denmark, Germany, Romania, Greece

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

Tabaqueira SA; Artur da Silva Neves – Redução de Ruído Ambiental em àrea de Produção Industrial, Nov2008

Instituto de Soldadura; Rui João de Sousa Mendes, Análise Gráfica da Condição de Purgadores de Condensado, Set2009

Hospital D. Estefânia; Carolina Madureira Sá e Mello, Repercussão do uso de CPAP nasal na sensibilidade das células ciliadas do recém-nascido; Jun2012

Hugo Manuel Brito Águas

Staff member since: 2005

Expertise field: Thin film Photovoltaics; Biosensors

Nº of citations: 1214

H impact factor: 16

5 most relevant papers/books/book chapters from 2008 to 2014

E. Fortunato, L. Raniero, L. Silva, A. Goncalves, A. Pimentel, P. Barquinha, H. Aguas, L. Pereira, G. Goncalves, I. Ferreira, E. Elangovan, R. Martins, "Highly stable transparent and conducting gallium-doped zinc oxide thin films for photovoltaic applications", Solar Energy Materials and Solar Cells, 92(12) (2008) pp. 1605-1610. DOI: 10.1016/j.solmat.2008.07.009

I. Bernacka-Wojcik, R. Senadeera, P.J.Wojcik, L.B. Silva, G. Doria, P. Baptista, H. Aguas, E. Fortunato, R. Martins, "Inkjet printed and "doctorblade" TiO2 photodetectors for DNA biosensors", Biosensors & Bioelectronics, 25(5) (2010) pp. 1229-1234 . DOI: 10.1016/j.bios.2009.09.027

H. Águas, S. K. Ram, A. Araújo, D. Gaspar, A. Vicente, S. A. Filonovich, E. Fortunato, R. Martins, I. Ferreira, "Silicon thin film solar cells on commercial tiles", Energy Environ. Sci., 4 (2011) 4620, DOI: 10.1039/c1ee02303a

I. Bernacka-Wojcik, P. Lopes, A.C. Vaz, B. Veigas, P.J. Wojcik, P. Simões, D. Barata, E. Fortunato, P.V. Baptista, H. Águas, R. Martins, "Bio-microfluidic platform for gold nanoprobe based DNA detection — application to Mycobacterium tuberculosis", Biosensors and Bioelectronics 48 (2013) 87–93. DOI: 10.1016/j.bios.2013.03.079

S. Morawiec, M.J. Mendes, S.A. Filonovich, T. Mateus, S. Mirabella, H. Águas, I. Ferreira, F. Simone, E. Fortunato, R. Martins, F. Priolo, and I. Crupi, "Broadband photocurrent enhancement in a-Si:H solar cells with plasmonic back reflectors", Optics Express Vol. 22, Iss. S4, pp. A1059–A1070 (2014), DOI:10.1364/OE.22.0A1059

Course lectures

Biosensores; Nanomaterials and Nanotechnology; Materials Processing for Electronics; Thin Film Technology; Materials Characterization Techniques

Awards received

1996 - Best Student to graduate from Material Engineering course; 2012 - Innovation Award in EnergyLiveExpo event for the Solar Tiles Project

Participation in national and international education networks

Erasmus Network with several Europen Univeristies; Nantes; Orleans; Barcelona; Madrid; Istanbul.

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

Iwona Bernacka-Wojcik – "Fabrication and optimisation of biosensors for biomolecular recognition based in the interaction of light with functionalised Au and TiO2 nanoparticles". Especialidade em Nanomateriais e Nanotecnologia. (2008-2014)

António Vicente – "Desenvolvimento de células solares Nanomorfas em substratos cerâmicos para aplicação industrial". Financiado pelo programa MIT-Portugal, Especialidade em Sistemas de Bio-Engenharia. (Start in 2009)

Andreia Araújo- "Development of nanoparticle based plasmonic structures for Si solar cell applications ". (Start in 2013)

Pedro Miguel Cândido Barquinha

Staff member since: 2012

Expertise field: Transparent electronics, nanofabrication, electrical characterization of materials and devices

Nº of citations: 3195

H impact factor: 28

5 most relevant papers/books/book chapters from 2008 to 2014

P. Barquinha, R. Martins, L. Pereira, and E. Fortunato, "Transparent Oxide Electronics: From Materials to Devices. West Sussex: Wiley, 2012.

P. Barquinha, R. Martins, and E. Fortunato, "N-type oxide semiconductor thin-film transistors", in Advances in GaN and ZnO-based Thin Film, Bulk and Nanostructured Materials and Devices, S.J. Pearton, Ed. Springer series in materials science, New York: Springer, 2012.

P. Bahubalindruni, V. Tavares, P. Barquinha, C. Duarte, P. de Oliveira, R. Martins, and E. Fortunato, "Transparent Current Mirrors With a-GIZO TFTs: Neural Modeling, Simulation and Fabrication," Journal of Display Technology, vol. 9, pp. 1001-1006, 2013.

E. Fortunato, P. Barquinha, and R. Martins, "Oxide Semiconductor Thin-Film Transistors: A Review of Recent Advances," Advanced Materials, vol. 24, pp. 2945-2986, 2012.

P. Barquinha, L. Pereira, G. Goncalves, R. Martins, and E. Fortunato, "Toward High-Performance Amorphous GIZO TFTs," Journal of the Electrochemical Society, vol. 156, pp. H161-H168, 2009.

Course lectures

Nanofabrication and Characterization of Nanostructures

Materials and Technologies for Flat Panel Displays

Microelectronics III

Materials characterization techniques

Relevant positions taken at National and International levels

Program committee, International Conference on Photonics, Optics and Laser Technology (Photoptics 2014), Lisbon, 2014.

Program coordinator, 8th International Thin-Film Transistor Conference (ITC 2012), Lisbon, 2012.

Guest Editor of a Special Issue of Journal of Display Technology, associated with the ITC2012 conference.

Frequent reviewer of more than 50 scientific papers in international journals, such as Advanced Materials, Applied Physics Letters, Journal of Applied Physics, IEEE-Electron Device Letters, IEEE-Transactions on Electron Devices, IEEE Journal of Display Technology, Journal of Electrochemical Society, Electrochemical and Solid State Letters, Thin Solid Films, Physica Status Solidi-A, Journal of Non-Crystalline Solids.

Awards received

2011 - Most cited article 2006-2010, Journal of Non-Crystalline Solids, "Influence of the semiconductor thickness on the electrical properties of transparent TFTs based on indium zinc oxide".

2010 - Journal of Information Display (JID) best paper award 2010, Korean Display Society, "Self-sustained n-Type Memory Transistor Devices Based on Natural Cellulose Paper Fibers".

2009 - 1st place in "Prémio Inovação Jovem Engenheiro 2008", Ordem dos Engenheiros, "Nova geração de mostradores planos transparentes com matriz activa: projecto, fabrico, caracterização e integração de TFTs de óxidos semicondutores".

2008 - 1st place in "Estímulo à investigação" (stimulus for research), topic "Physics of low dimensional systems", by Fundação Calouste Gulbenkian, "Nanotransístores de óxidos semicondutores".

Participation in national and international education networks

P. Barquinha, "Current developments in oxide TFTs", ORAMA Summer School 2012, Crete, Greece (October 2012).

P. Barquinha, L. Pereira, R. Martins, E. Fortunato, "Advanced dielectrics for AOS", ORAMA Summer School 2010, Crete, Greece (October 2010).

Luis Miguel Nunes Pereira

Staff member since: 2012

Expertise field: Functional oxides and paper electronics

Nº of citations: 3510

H impact factor: 30

5 most relevant papers/books/book chapters from 2008 to 2014

L. Pereira, D. Gaspar, D. Guerin, A. Delattre, E. Fortunato and R. Martins, "The influence of fibril composition and dimension on the performance of paper gated oxide transistors" Nanotechnology 25 (2014) 094007

R.F.P. Martins, A. Ahnood, N. Correia, L.M.N. Pereira, R. Barros, P.M.C. Barquinha, R. Costa, I.M.M. Ferreira, A. Nathan, E.M.C. Fortunato, "Recyclable, Flexible, Low-Power Oxide Electronics" Advanced Functional Materials, 23 (2013) 2153-2161

P.J. Wojcik, A.S. Cruz, L. Santos, L. Pereira, R. Martins, E. Fortunato, "Microstructure control of dual-phase ink-jet-printed a-WO3/TiO2/WOX films for high-performance electrochromic applications", Journal of Materials Chemistry, 22 (2012) 13268

R. Martins, A. Nathan, R. Barros, L. Pereira, P. Barquinha, N Correia, R Costa, A Ahnood, I Ferreira, E Fortunato, "Complementary metal oxide semiconductor technology with and on paper", Advanced Materials, 23 (2011) 4491

Books

Pedro Barquinha, Rodrigo Martins, Luís Pereira, Elvira Fortunato, Transparent Semiconductors: From Materials to Devices. West Sussex: Wiley & Sons (March 2012), ISBN 9780470683736

Course lectures

Microelectronics I (Microelectronica I)

Microelectronics II (Microelectronica II)

Optoelectronics (Optoelectrónica)

Paper and Cellulosic Materials (Materias Celulósicos e Papel)

Materials Characterization Techniques (Técnicas de Caracterização de Materiais)

Relevant positions taken at National and International levels

Member of the scientific board of Conference Electronics, Telecommunications and Computers, Lisbon, 5th -6th December 2013

Member of the Board of Delegates of the European Materials Research Society, since 2012

Expert of Portuguese Innovation Agency

Expert of the Romanian National Scientific Research Council

Expert of the Romanian National Council for Research and Development

Symposium BB chair ("Paper electronics: a new challenge for materials a new opportunity for devices II"), E-MRS Spring Meeting 2015

Symposium R chair ("Towards lightweight and flexible electrochemical devices"), E-MRS Spring Meeting 2014

Symposium D chair ("Paper electronics: a new challenge for materials a new opportunity for devices") E-MRS Fall Meeting 2013

Symposium L chair ("Towards lightweight and flexible and self-sustained ion based devices") E-MRS Fall Meeting 2011, more than 1000 attendees/Warsaw/France

Awards received

2010 - Best SID paper, Korean Information Display Society/Korea, work on paper transistors and memory

2009 - R&D Green Project Award/Portugal, work on paper transistors

2009 - Exame Informatica/Portugal – Innovation prize, work in transparent electronics and paper electronics

2009 – IdTechEx – Academic R&D award, Printed Electronics USA 2009

Participation in national and international education networks

2nd and 3rd cycle students exchange with Politécnico de Torino, Italy (contact: Prof. Silvia Bodoardo)

3rd cycle student exchange with Centro de Richerche Fiat, Italy (contact: Dr. Vito Lambertini)

2nd and 3rd cycle student exchange with Centre Technique do Papier, France (contact: Dr. Veronique Morin)

3rd cycle student exchange with ACREO, Sweden (contact: Dr. Magnus Svenson)

2nd and 3rd cycle student exchange with Bioage, Italy (contact: Stefano Sinopli)

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

Cellulose-carbon fibers composites for electronic applications" Raquel Barras, supervior Luis Pereira, co-supervisor Engº Bruno Ricardo Nunes Pereira, FISIPE

João Paulo Miranda Ribeiro Borges

Staff member since: 1999

Expertise field: Biomaterials. Magnetic Nanoparticles. Hyperthermia.

Nº of citations: 275

H impact factor: 11

5 most relevant papers/books/book chapters from 2008 to 2014

João, CF, JM Vasconcelos, JC Silva, and J. P. Borges. "An overview of inverted colloidal crystal systems for tissue engineering." Tissue Eng Part B Rev. (2014): [Epub ahead of print] (doi:10.1089/ten.TEB.2013.0402).

Soares, PI, AM Alves, LC Pereira, JT Coutinho, IM Ferreira, CM Novo, and J. P. Borges. "Effects of surfactants on the magnetic properties of iron oxide colloids." J Colloid Interface Sci.. 419 (2014): 46-51.

PQ, Franco, Joao CFC, Silva JC, and Borges JP. "Electrospun hydroxyapatite fibers from a simple sol-gel system." MATERIALS LETTERS. 67 (2012): 233-236.

AC, Baptista, Martins JI, Fortunato E, Martins R, Borges JP, and Ferreira I. "Thin and flexible bio-batteries made of electrospun cellulose-based membranes." BIOSENSORS & BIOELECTRONICS. 26 (2011): 2742-2745.

JP, Canejo, Borges JP, Godinho MH, Brogueira P, Teixeira PIC, and Terentjev EM. "Helical Twisting of Electrospun Liquid Crystalline Cellulose Micro- and Nanofibers." Advanced Materials. 20 (2008): 4821-4825.

Course lectures

Biomaterials

Relevant positions taken at National and International levels

April 2004/… - Assistant Professor DCM- FCT/UNL

2006/2010 - Coordinator of the MSc in Materials Engineering, FCT/UNL

2010/… - Coordinator of the Integrated Master in Materials Engineering, FCT/UNL

2008/2014 – Vice-director of CENIMAT/I3N

2012/… - Editor of the "Journal of Composites and Biodegradable Polymers"

2013/… - Editor of the "International Journal of Chemoinformatics and Chemical Engineering"

2014/… - Editor of the journal "Annals of Materials Science & Engineering"

Participation in national and international education networks

Member of the core team of AdvaMTech, FCT PhD program.

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

MSc Thesis:

João António Pires Miranda Nabais, "Soft Biomaterials as a substitute for the nucleus pulposus", 2014; in collaboration with VU University medical center, Amsterdam, Netherlands.

PhD Thesis

Hugo Miguel Lisboa Oliveira, "Produção de Quitosano e Desenvolvimento de novos Biomateriais a partir de resíduos alimentares" (Chitosan production and development of new biomaterials from seafood wastes"), FCT-MEC Scholarship ref. SFRH/ BDE/ 15557/ 2005. Approved on the 10th January 2012; in collaboration with CERAMED.

Sofia Gonçalves Mousinho Prata, "Contribuição para o desenvolvimento de novos implantes biocompatíveis para regeneração óssea" (Contribution to the development of new biocompatible implants for bone regeneration)"), FCT-MCTES Scholarship ref. SFRH/ BDE/ 15640/ 2006. Approved on the 5th December 2012; in collaboration with CERAMED.

Ana Espiga Machado, "Desenvolvimento de matrizes de microfibras e nanofibras para regeneração de tecidos cutâneos por fiação húmida e electrofiação"(Development of micro and nanofiber scaffolds by wetspinning and electrospinning for tissue engineering of skin), FCT-MCTES scholarship ref. SFRH/ BDE/ 15653/ 2007. Approved on the 18th June 2014; in collaboration with CERAMED.

Rui Alberto Garção Barreira do Nascimento Igreja

Staff member since: 1999

Expertise field: (Bio) Chemical Sensors, Dielectric Spectroscopy, Instrumentation, Nanotechnology.

Nº of citations: 329 (source: Web of science in 30Out2014)

H impact factor: 9 (source: Web of science in 30Out2014)

5 most relevant papers/books/book chapters from 2008 to 2014

P. Sanguino, T. Monteiro, F. Marques, C. J. Dias, R. Igreja, and R. Franco, "Interdigitated Capacitive Immunosensors With PVDF Immobilization Layers," Ieee Sensors Journal, vol. 14, pp. 1260-1265, Apr 2014.

K. Kardarian, T. Busani, I. Osorio, H. Domingos, R. Igreja, R. Franco, et al., "Sintering of nanoscale silver coated textiles, a new approach to attain conductive fabrics for electromagnetic shielding," Materials Chemistry and Physics, vol. 147, pp. 815-822, Oct 15 2014.

I. Osorio, R. Igreja, R. Franco, and J. Cortez, "Incorporation of silver nanoparticles on textile materials by an aqueous procedure," Materials Letters, vol. 75, pp. 200-203, MAY 15 2012 2012.

R. Igreja and C. J. Dias, "Extension to the analytical model of the interdigital electrodes capacitance for a multi-layered structure," Sensors and Actuators a-Physical, vol. 172, pp. 392-399, DEC 2011 2011.

E. R. Neagu, C. J. Dias, M. C. Lanca, R. Igreja, P. Inacio, and J. N. Marat-Mendes, "Charge Carriers Injection/Extraction at the Metal-Polymer Interface and Its Influence in the

Capacitive Microelectromechanical Systems-Switches Actuation Voltage" Journal of Nanoscience and Nanotechnology, vol. 10, pp. 2503-2511, APR 2010 2010.

Course lectures

Sensores Materiais e Aplicações, Técnicas de Instrumentação, Biossensores, Nanomateriais e Nanotecnologias, Propriedades Físicas dos Materiais, Processamento de Materiais para Electrónica, Dissertação.

Relevant positions taken at National and International levels

Member of Pedagogic Council FCT/UNL (2001-2004); Member Department Council DCM-FCT/UNL (2007-2010); Member Scientific Committee for the Master in Microelectronics and Nanotechnologies FCT/UNL (since 2013). CENIMAT sub-director (Centro de Investigação em Materiais) (since 2014).

João Carlos da Palma Goes

Staff member since: 1998

Expertise field: Electronics (Integrated Circuits)

Nº of citations: 678

H impact factor: 13

5 most relevant papers/books/book chapters from 2008 to 2014

J. P. Oliveira, J. Goes "Parametric Analog Signal Amplification applied in Nanoscale CMOS Technologies". Springer (ISBN 978-1-4614-1670-8), 2012.

M. Figueiredo, G. Evans, Goes J. "Reference-Free High-Speed CMOS Pipeline Analog-to-Digital Converters". Springer (ISBN 978-1-4614-3466-5), 2012.

João Goes, N. Pereira, "High-Performance AD and DA Converters, IC Design in Scaled Technologies, and Time-Domain Signal Processing Advances in Analog Circuit Design 2014", Chapter 1, Springer, 2015, XII, ISBN 978-3-319-07938-7.

J. R. Custódio, LB. Oliveira, JP. Oliveira, and J. Goes. "A 6.2 mW 0.024 mm2 fully-passive RF downconverter with 12 dB gain enhancement using MOS parametric amplification." Analog Integrated Circuits and Signal Processing. vol. 75.no. 2, pp. 299-304, 2013.

Custódio, J. R., J. Goes, and et al. "A 1.2-V 165-uW 0.29-mm2 Multi-Bit Sigma-Delta ADC for Hearing Aids using Nonlinear DACs and with over 91 dB Dynamic-Range." IEEE Transactions on Biomedical Circuits and Systems (TBCAS). vol. 7.no. 3, pp. 376-385, 2013.

Course lectures

Electronics I (Basic Electronics)

Low-Voltage and Low-Power Electronics (ERTP)

Nanocircuits and Analog Systems (NSA)

Relevant positions taken at National and International levels

Chair-Elect for the IEEE CASS Analog Signal Processing Technical Committee (ASPTC, 2013-2014, term) and (currently) the Chairman of this Committee (the largest within CASS) for the 2014-2015 term.

Awards received

IEEE Circuits and Systems Society 2012 Outstanding Young Author Award (co-recipient).

Participation in national and international education networks

Erasmus Coordinator with the Poznan University of Technology, Poland.

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

Alexandre Silva, "Projecto de um ADC concorrencial de 10 bits em tecnologia CMOS de 65 nm utilizando DACs multiplicativos insensíveis aos erros de emparelhamento", FCT/UNL, Monte da Caparica, 2012. (M. Sc. Thesis carried out in Silicon and Software Systems, S3Group, Madan-Parque).

João Pedro Abreu de Oliveira

Staff member since: September 2003

Expertise field: RF CMOS and Microsystem design

Nº of citations: 72

H impact factor: 5

5 most relevant papers/books/book chapters from 2008 to 2014

Book:

Oliveira, J.P. and Goes, João (2012) Parametric Analog Signal Amplification Applied to Nanoscale CMOS Technologies. Springer. ISBN 978-1-4614-1670-8. eISBN 978-1-4614-1671-5. URL: http://dx.doi.org/10.1007/978-1-4614-1671-5.

Papers:

Oliveira, J.P. and Goes, J. and Figueiredo, M. and Santin, E. and Fernandes, J. and Ferreira, J. (2010) "An 8-bit 120-MS/s Interleaved CMOS Pipeline ADC Based on MOS Parametric Amplification". IEEE Transactions on Circuits and Systems II: Express Briefs, 57 (2), pp. 105-109. ISSN 1549-7747. eISSN 1558-3791. URL: http://dx.doi.org/10.1109/TCSII.2009.2038632.

Custodio, Jose R. and Goes, João and Paulino, Nuno and Oliveira, J.P. and Bruun, Erik (2013) "A 1.2-V 165-mu W 0.29-mm(2) Multibit Sigma-Delta ADC for Hearing Aids Using Nonlinear DACs and With Over 91 dB Dynamic-Range". IEEE Transactions on Biomedical Circuits and Systems, 7 (3), pp. 376-385. ISSN 1932-4545. eISSN 1940-9990. URL: http://dx.doi.org/10.1109/TBCAS.2012.2203819.

Custódio, J. R. and Bastos, I. and Oliveira, L. and Oliveira, J. P. and Pereira, Paula and Goes, João and Bruun, E. (2013) "A 6.2 mW 0.024 mm2 fully-passive RF downconverter with 12 dB gain enhancement using MOS parametric amplification". Analog Integrated Circuits and Signal Processing, 75 (2), pp. 299-304. ISSN 0925-1030. eISSN 1573-1979. URL: http://dx.doi.org/10.1007/s10470-013-0049-3.

Paulino, Nuno and Oliveira, João P. and Santos-Tavares, Rui (2013) "The design of an audio power amplifier as a class project for undergraduate students". [Paper]. In: 2013 IEEE International Symposium on Circuits and Systems (ISCAS2013), 19-23 May 2013, Beijing . URL: http://dx.doi.org/10.1109/ISCAS.2013.6572402.

Course lectures

Circuit Theory

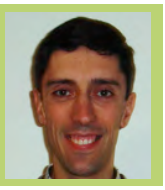
Electronics I

Electronics for Radio Frequency

Electronics for Biomedical and Multimedia Microsystems

Low-Voltage Electronics and Power Management

Electronics for Nanocircuits and Systems



Luis Augusto Bica Gomes de Oliveira

Staff member since: 2007.

Expertise field: RF CMOS circuits

Nº of citations: 317 (source google scholar)

H impact factor: 10 (source google scholar)

5 most relevant papers/books/book chapters from 2008 to 2014

Book: Luís B. Oliveira, J. Fernandes, Chris Verhoeven, Igor Filanovsky, and Manuel Silva, Analysis and Design of Quadrature Oscillators, Springer, 2008.

Journal Papers:

L. B. Oliveira, A. Allam, I. M. Filanovsky, J. Fernandes, C. J. M. Verhoeven, and Manuel Silva, Experimental Comparison of Phase Noise in Cross-Coupled RC- and LC-Oscillators, International Journal on Circuit Theory and Applications, Wiley InterScience, 2009.

E. Santin, L. B. Oliveira, B. Nowacki and J. Goes, "A Fully Integrated and Reconfigurable Architecture for Coherent Self-Testing of High Speed Analog-to-Digital Converters", IEEE Trans. Circuits and Systems I – Regular Papers, vol. 58, pp. 1531-1541, July 2011.

L. B. Oliveira, C. Leitão, M. Silva "Noise Performance of Regulated Cascode Transimpedance Amplifier for Radiation Detectors", IEEE Trans. Circuits and Systems I – Regular Papers, vol. 59, nº 9, pp. 1841-1848, September 2012.

M. Silva and L. B. Oliveira, "Regulated Common-Gate Transimpedance Amplifier Designed to Operate with a Silicon Photo-Multiplier at the Input", IEEE Trans. Circuits and Systems I – Regular Papers, vol. 61, nº3, pp. 725-735, March 2014.

Course lectures

Regente/Responsável in disciplines EII, EIV e ERF.

Relevant positions taken at National and International levels

Member of the Technical Program Committee - Analog Signal Processing Group at conference ISCAS, Flagship conference of the IEEE Circuits and Systems Society.

Awards received

Outstanding Paper Award for the papers: 1) "LNA, Oscillator, and Mixer, Co-Design for Compact RF-CMOS ISM Receivers" and 2)"A Simplified Design of a MOSFET-only Wideband Gilbert Cell" presented at conferences MIXDES'09 and MIXDES'11, respectively.

Certificate of Excellence for the paper" Fast-Settling Low-Power Two-Stage Self-Biased CMOS Amplifier Using Feed-forward-Regulated Cascode Devices", ICECS'2010

Nuno Filipe Silva Veríssimo Paulino

Staff member since: 2008

Expertise field: CMOS mixed signal electronic circuits

Nº of citations: 550 (google scholar)

H impact factor: 12 (google scholar)

5 most relevant papers/books/book chapters from 2008 to 2014

Low Power UWB CMOS Radar Sensors, Paulino, Nuno, Goes, João, Steiger Garção, Adolfo; Springer, Series: Analog Circuits and Signal Processing; 2008, VIII, 236 p; ISBN: 978-1-4020-8409-6

Nowacki, B.; Paulino, N.; Goes, J.; , "A 1.2 V 300 μW second-order switched-capacitor ΔΣ modulator using ultra incomplete settling with 73 dB SNDR and 300 kHz BW in 130 nm CMOS," ESSCIRC (ESSCIRC), 2011 Proceedings of the , vol., no., pp.271-274, 12-16 Sept. 2011

Custodio, J.R.; Goes, J.; Paulino, N.; Oliveira, J.P.; Bruun, E., "A 1.2-V 165- W 0.29-mm Multibit Sigma-Delta ADC for Hearing Aids Using Nonlinear DACs and With Over 91 dB Dynamic-Range," ; Biomedical Circuits and Systems, IEEE Transactions on , vol.7, no.3, pp.376,385, June 2013

C Carvalho, N Paulino; " Start-up circuit for low-power indoor light energy harvesting applications" ; IET Electronics Letters, vol. 49, no. 10, pp. 669-671, May 2013

Carvalho, Carlos; Lavareda, Guilherme; Amaral, Ana; Carvalho, Carlos Nunes; Paulino, Nuno "A CMOS micro power switched-capacitor DC–DC step-up converter for indoor light energy harvesting applications", Springer Netherlands, Analog Integrated Circuits and Signal Processing , February 2014, Volume 78, Issue 2, pp 333-351

Course lectures

Regente das cadeiras de Eletrónica I e eletrónica III

Pedro Miguel Ribeiro Viana Baptista

Staff member since: Sept 2012-…: Associate Professor (c/ Agregação) at Dept. of Life Sciences, FCT, UNL. May 2001 - Sept 2012: Assistant Professor at Dept. of Life Sciences, FCT, UNL

Expertise field: Nanomedicine; BioNanotechnology: Biotechnology; Nanodiagnostics; Gene therapy; Cancer;

Nº of citations: 815

H impact factor: 15

5 most relevant papers/books/book chapters from 2008 to 2014

1. João Conde, Chenchen Bao, Daxiang Cui, Pedro V. Baptista and Furong Tian. Antibody-Drug gold nanoantennas with

Raman spectroscopic fingerprints for in vivo tumour theranostics. J Control Release (2014) 183:87-93 (IF=7.633);

2. João Conde, Miguel Larguinho, Ana Cordeiro, Luis R Raposo, Pedro M Costa, Susana Santos, Mário Diniz, Alexandra R Fernandes, Pedro Viana Baptista. Gold-Nanobeacons for gene therapy: evaluation of genotoxicity, cell toxicity and proteome profiling analysis. Nanotoxicology (2014) 8(5):521–532 (IF=7.844);

3. João Conde, João Rosa, Jesús M. de la Fuente, Pedro V. Baptista. Gold-nanobeacons for simultaneous gene specific silencing and intracellular tracking of the silencing events. Biomaterials (2013) 34(10):2516-23 (IF=7.604)

4. Veigas B, Jacob JM, Costa MN, Santos DS, Viveiros M, Inácio J, Martins R, Barquinha P, Fortunato E, Baptista PV. Gold on paper-paper platform for Au-nanoprobe TB detection. Lab Chip. (2012) 12(22):4802-8 (IF=6.5)

5. Conde J, Ambrosone A, Sanz V, Hernandez Y, Marchesano V, Tian F, Child H, Berry CC, Ibarra MR, Baptista PV, Tortiglione C, de la Fuente JM. Design of Multifunctional Gold Nanoparticles for In Vitro and In Vivo Gene Silencing. ACS Nano, (2012) 6(9):8316–8324 (IF=11.421)

Course lectures

Bionanotechnology

Molecular Genetics

Awards received

2012 – Prize of Scientific Merit - Prémio Santander-Totta / Universidade Nova Lisboa

2000 – Merck-Sharp-Dome Prize for Best PhD presentation: Merck Sharp & Dohme Laboratories - School of Pharmacy - University of London

Participation in national and international education networks

PhD Program in Molecular BioSciences

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

2013 Desenvolvimento e implementação da análise molecular do gene EGFR realizada em indivíduos com cancro do pulmão do tipo não-pequenas células (CPNPC) – Pedro Miguel Alcobia Lança Piedade Penedo (MSc at STABVIDA, Lda) - MSc in Molecular Genetics and Biomedicine, FCT/UNL

Joint supervision of PhD Thesis with Industry and International partners in the last 5 years

1- Fábio Alexandre Teixeira Ferreira Carlos - Bolsa de Doutoramento em Empresa - FCT/MCTES - Development of nanodiagnostics kit for characterisation of polymorphisms associated with obesity (Supervisor); Co-supervisor: Gonçalo Doria. PhD programme in Biotechnology; Collaboration with STAB_Vida, Lda;

2- 2013 João Diogo Osório de Castro Conde - FCT/MCTES-SFRH/BD/62957/2009 Cancer Theragnostics - multifunctional gold nanoparticles for diagnostics and therapy (Supervisor); Co-supervisor: Jesus M de la Fuente. PhD programme in Biology; Collaboration with Instituto Nanotecnologia de Aragon, Zaragoza, Spain;

3- 2010 Gonçalo Maria Reimão Pinto de França Doria - Bolsa Doutoramento em Empresa – FCT/MCES – SFRH/BDE/15544/2005. Nanossondas de ouro coloidal para identificação e caracterização de polimorfismos de DNA. (Supervisor); Co-supervisor: Ricardo Franco. Bioengineering, Specialisation Genetic Engineering STAB_Vida, Lda

Regina da Conceição Corredeira Monteiro

Staff member since: 1983

Expertise field: Ceramics and Glasses

Nº of citations: 661

H impact factor: 12

5 most relevant papers/books/book chapters from 2008 to 2014

RS Soares, RCC Monteiro, AAS Lopes, MMRA Lima, BA Sava, M Elisa "Crystallization and microstructure of Eu 3+-doped lithium aluminophosphate glass" (2014) J. Non-Crystalline Solids 403, 9-17

M Elisa, BA Sava, IC Vasiliu, RCC Monteiro, JP Veiga, L Ghervase, "Optical and structural characterization of samarium and europium-doped phosphate glasses" (2013) J. Non-Crystalline Solids 369, 55-60

M Lima, RCC Monteiro, MPF Graça, MG Ferreira da Silva, "Structural, electrical and thermal properties of borosilicate glass–alumina composites"(2012) J. Alloys and Compounds 538, 66-72

RCC Monteiro, AAS Lopes, M Lima, JP Veiga, RJC Silva, CJ Dias "Sintering, Crystallization, and Dielectric Behavior of Barium Zinc Borosilicate Glasses—Effect of Barium Oxide Substitution for Zinc Oxide" (2012) J. American Ceramic Society 95 (10), 3144-3150

RCC Monteiro, CF Figueiredo, MS Alendouro, MC Ferro, EJR Davim, MHV Fernandes, "Characterization of MSWI bottom ashes towards utilization as glass raw material"(2008) Waste management 28, 1119-1125

Course lectures

Materiais Cerâmicos e Vidros, Cerâmicos Técnicos e Tecnologia de Nanomateriais

Participation in national and international education networks

Erasmus Program (University of Modena, Italy).

Guilherme António Rodrigues Lavareda

Staff member since: 1990

Expertise field: Semiconductors, Thin-film technology, Microelectronics processing

Nº of citations: 454

H impact factor: 11

5 most relevant papers/books/book chapters from 2008 to 2014

Lavareda, G, Velozo, A., de Carvalho, CN, Amaral, A, "p/n junction depth control using amorphous silicon as a low temperature dopant source" THIN SOLID FILMS 543 (2013), 122-124.

de Carvalho, CN, Parreira, P, Lavareda, G, Brogueira, P, Amaral, A, "P-type CuxS thin films: Integration in a thin film transistor structure" THIN SOLID FILMS 543) (2013), 3-6

Ribeiro, C, Brogueira, P, Lavareda, G, Carvalho, CN, Amaral, A, Santos, L, Morgado, J , Scherf, U, Bonifacio, VDB, "Ultrasensitive microchip sensor based on boron-containing polyfluorene nanofilms" BIOSENSORS & BIOELECTRONICS 26 (4) (2010), 1662-1665.

Lavareda, G, Parreira, P, Valente, J, Nunes, FT, Amaral, A, de Carvalho, CN, "Highly transparent undoped semiconducting ZnOx thin films deposited at room temperature by rf-PERTE - Influence of rf power" JOURNAL OF NON-CRYSTALLINE SOLIDS 356 (28-30) (2010), 1392-1394.

Vieira, M, Fantoni, A, Fernandes, M, Louro, P, Lavareda, G, Carvalho, CN, "Pinpi'n and Pinpii'n Multilayer Devices with Voltage Controlled Optical Readout" JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY 9 (7), (2009), 4022-4027

Course lectures

Técnicas de Instrumentação (Instrumentation Techniques)

Microelectrónica (Microelectronics)

Selecção de Materiais (Selection of Materials)

Modelação Computacional de Materiais (Materials Computer Modelling)

Desenho Técnico Assistido por Computador (CAD)

Microelectrónica II (MIcroelectronics II)

Microelectrónica III (Microelectronics III)

Materiais Semicondutores (Semiconductor Materials)

Maria do Carmo Henriques Lança

Staff member since: 1990

Expertise field: 66

Nº of citations: 5

H impact factor: 5

5 most relevant papers/books/book chapters from 2008 to 2014

ER Neagu, CJ Dias, MC Lanca, R Igreja, P Inacio, JN Marat-Mendes, "The use of the final thermally stimulated discharge current technique to study the molecular movements around glass transition", J. of Non-Cryst. Solids, Vol. 357(2), pp. 385-390, DOI: 10.1016/j.jnoncrysol.2010.05.095, 2011

MC Lanca, M Brandt, ER Neagu, CJ Dias, JN Marat-Mendes, "Dielectric spectra of natural cork and derivatives", J. of Non-Cryst. Solids, Vol. 356(11-17), pp. 763-767, DOI: 10.1016/j.jnoncrysol.2009.09.042, 2010

ER Neagu, CJ Dias, MC Lanca, R Igreja, P Inacio, JN Marat-Mendes, "Charge Carriers Injection/Extraction at the Metal-Polymer Interface and Its Influence in the Capacitive Microelectromechanical Systems-Switches Actuation Voltage", J. of Nanosci. and Nanotechn., Vol. 10(4), pp. 2503-2511, DOI: 10.1166/jnn.2010.1405, 2010

ER Neagu, RM Neagu, CJ Dias, MC Lanca, JN Marat-Mendes, "The analysis of isothermal current in terms of charge injection or extraction at the metal-dielectric contact", J. of Non-Cryst. Solids, Vol. 356(11-17), pp. 833-837, DOI: 10.1016/j.jnoncrysol.2009.04.080, 2010

ER Neagu, RM Neagu, CJ Dias, MC Lanca, JN Marat-Mendes, "The determination of the metal-dielectric interface barrier height from the open-circuit isothermal charging current", J, of Appl. Phys., Vol. 104(3), Art. Num: 034102, DOI: 10.1063/1.2952015, 2008

Course lectures

Física II (Thermodynamics)

Propriedades Físicas dos Materiais (Physical Properties of Materials)

Modelação Computacional de Materiais (Computational Modelling of Materials)

João Pedro Botelho Veiga

Staff member since: 1998

Expertise field: Crystal Chemistry, Glass and Ceramics, Synchrotron Radiation, Cultural Materials, X-Rays

Nº of citations: 184

H impact factor: 7

5 most relevant papers/books/book chapters from 2008 to 2014

M. L. Coutinho, V. S. F. Muralha, J. Mirao and J. P. Veiga, Non-destructive characterization of oriental porcelain glazes and blue underglaze pigments using mu-EDXRF, mu-Raman and VP-SEM, Applied Physics A -Materials Science & Processing, 2014, 114 (3) 695-703

S. Sá, Manoj B. Gawande, A. Velhinho, J.P. Veiga, N. Bundaleski, J. Trigueiro, A. Tolstogouzov, O.M.N.D. Teodoro, R. Zboril, R.S. Varma, P.S. Branco, "Magnetically recyclable magnetite-palladium (Nanocat-Fe-Pd) nanocatalyst for the Buchwald-Hartwig reaction", Green Chemistry, 2014, 16 (7) 3494-3500 – DOI: 10.1039/C4GC00558A

M. Elisa, B. A. Sava, I. C. Vasiliu, R. C. C. Monteiro, J. P. Veiga, L. Ghervase, I. Feraru, R. Iordanescu, Optical and structural characterization of samarium and europium-doped phosphate glasses, Journal of Non-Crystalline Solids, 2013, 369 55-60.

M. O. Figueiredo, T. P. Silva and J. P. Veiga, A XANES study of cobalt speciation state in blue-and-white glazes from 16th to 17th century Chinese porcelains, Journal of Electron Spectroscopy and Related Phenomena, 2012, 185 (3-4) 97-102.

J. Perdigao, A. M. Pinto, R. C. C. Monteiro, F. M. Braz Fernandes, P. Laranjeira and J. P. Veiga, Degradation of dental ZrO2-based materials after hydrothermal fatigue. Part I: XRD, XRF, and FESEM analyses, Dental Materials Journal, 2012, 31 (2) 256-265.

Course lectures

Introduction to Micro and Nanotechnologies (Introdução às Micro e Nanotecnologias) [MIEMN]

Techniques of Characterization and Nondestructive Testing (Técnicas de Caracterização e Ensaios Não Destrutivos) [MIEMat]

Techniques for Materials characterization (Técnicas de Caracterização de Materiais) [MIEMN]

Dissertation Project (Projeto de Dissertação) [MIEMat]

Introduction to Materials Science and Engineering (Ciência dos Materiais) [MIEM] [MIEGI] [MIEQB]

Crystal Chemistry (Cristaloquímica) [MIEMat]

Surfaces and Interfaces (Superfícies e Interfaces) [MIEMN]

Relevant positions taken at National and International levels

Co-organizer of 2014 International Year of Crystallography at NOVA

Co-organizer of EMRS SPRING 15 WB: Workshop on Sustainable solutions for restoration & conservation of cultural heritag

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

MSc supervisor of Caterina Stenta: "Study and Characterization of the ZnPc:C60/MoOx Interface in Organic Solar Cells by means of Photoelectron Spectroscopy". MSc in Materials Engineering, FCT-UNL (Prova pública em 17/04/2013). Co-supervisor: Prof. Dr. Iver Lauermann, Helmholtz Zentrum Berlin (Germany).

Maria Margarida Rolim Augusto Lima

Staff member since: 1989

Expertise field: Processing and characterization of glass and ceramics.

Effect of experimental parameters on the final microstructure, thermal, electrical and optical properties of the composites. Sintering behaviour of glasses and of glass-nanoceramic particle composites: Crystallization kinetics by isothermal and non-isothermal methods.

Nº of citations: 26

H impact factor: 3

5 most relevant papers/books/book chapters from 2008 to 2014

Structural, electrical and thermal properties of borosilicate glass–alumina Composites, M.M.R.A. Lima , R.C.C. Monteiro , M.P.F. Graça , M.G. Ferreira da Silva, Journal of Alloys and Compounds 538 (2012) 66–72, DOI: 10.1016/j.jallcom.2012.05.024

Sintering, Crystallization, and Dielectric Behavior of Barium Zinc Borosilicate Glasses—Effect of Barium Oxide Substitution for Zinc Oxide, Regina C. C. Monteiro1, Andreia A. S. Lopes, Maria M. A. Lima, João P. Veiga, Rui J. C. Silva, Carlos J. Dias, Erika J. R. Davim and Maria H. V. Fernandes, J. Am. Ceram. Soc., 95 [10] 3144–3150 (2012),DOI: 10.1111/j.1551-2916.2012.05418.x

Crystallization kinetics of a barium–zinc borosilicate glass by a non-isothermal method, A.A.S. Lopes, R.C.C. Monteiro, R.S. Soares, M.M.R.A. Lima, M.H.V. Fernandes, Journal of Alloys and Compounds, Volume 591, 5 April 2014, Pages 268–274, DOI: 10.1016/j.jallcom.2013.12.086

Crystallization and microstructure of Eu3+-doped lithium aluminophosphate glass, Roque S. Soares, Regina C.C. Monteiro, Andreia A.S. Lopes, Maria M.R.A. Lima, Bogdan A. Sava, Mihail Elisa, Journal of Non-Crystalline Solids 403 (2014) 9–17, DOI: 10.1016/j.jnoncrysol.2014.06.017

Glass transition and crystallization kinetics of a barium borosilicate glass by a non-isothermal method, Andreia A. S. Lopes, Roque S. Soares, Maria M. A. Lima, and Regina C. C. Monteiro, Journal of Applied Physics 115, 043516 (2014); DOI: 10.1063/1.4863334

Course lectures

Tecnologia de Nanomateriais (TN)

Joint supervision of MSc Thesis with Industry and International partners in the last 5 years

Braz, Lara Filipa Carvalho: Valorização de fosfogesso - contributo para a mineralização do clínquer, 2009 - SECIL

Pires, Sílvia Magalhães da Silva:Estudo comparativo da resistência à compressão do betão em provetes normalizados e em estrutura betonada, 2011 - UNIBETÃO

Propaedeutic staff

António José Mesquita da Cunha Machado Malheiro

Staff member since: February 2000

Expertise field: Mathematics

Nº of citations: 18

H impact factor: 3

5 most relevant papers/books/book chapters from 2008 to 2014

Gray, R., Malheiro, A. (2014). Homotopy Bases and Finite Derivation Type for Subgroups of Monoids. Journal of Algebra 410, 53–84.

Araújo, J., Konieczny, J., Malheiro, A. (2014). Conjugation in Semigroups. Journal of Algebra 403, 93–134.

Araújo, J., Kinyon, M., Malheiro, A. (2013). A characterization of adequate semigroups by forbidden subsemigroups. Proceedings of the Royal Society of Edinburgh Section A 143(6), 1115–1122.

Gray, R., Malheiro, A., Pride, S. (2013). Homotopy bases and finite derivation type for Schutzenberger groups of monoids. Journal of Symbolic Computation 50, 50–78.

Gray, R., Malheiro, A., Pride, S. (2011). On properties not inherited by monoids from their Schutzenberger groups. Information and Computation 209(7), 1120–1134.

Course lectures

Linear Algebra and Analytic Geometry C (Álgebra Linear e Geometria Analítica C)

Relevant positions taken at National and International levels

Member of the directive Board of the Center of Algebra of the University of Lisbon (CAUL) since 2007;

Member of the Scientific Council of the Master course on Mathematics and Applications from 2010 until June 2014 in the Faculty of Sciences and Tecnology of University Nova de Lisboa;

Indicated as peer-reviewer for the European Science Foundation during 2009/2010 and 2011/2012.

Maria Alice Santos Pereira

Staff member since: March 2000

Expertise field: Biochemistry / Biophysics

Nº of citations: 1230; 24.60 citations per item in WoS

H impact factor: 18.0

5 most relevant papers/books/book chapters from 2008 to 2014

1. "A Tailor-Made "Tag-Receptor" Affinity Pair for the Purification of Fusion Proteins". A.S. Pina, M. Guilherme, A.S. Pereira, C.S.F.M. Fernandes, R.J.F. Branco, G. El Khoury, C.R. Lowe, A.C. Roque. ChemBioChem., 15(10): 1423-1435 (2014)

2. "Spectroscopic evidence for and characterization of a trinuclear ferroxidase center in bacterial ferritin from Desulfovibrio vulgaris Hildenborough". A.S. Pereira,* C.G. Timóteo, M. Guilherme, F. Folgosa, S.G. Naik, A.G. Duarte, B.H. Huynh, P. Tavares. J. Am. Chem. Soc., 134: 10822-10832 (2012)

3. "Desulfovibrio vulgaris bacterioferritin uses H2O2 as co-substrate for iron oxidation and reveals DPS-like DNA protection and binding activities". C.G. Timóteo, M. Guilherme, F. Folgosa, P. Tavares, A.S. Pereira* . Biochemical J., ChemBio, 446: 125-133 (2012)

4. "New spectroscopic and electrochemical insights on a class I superoxide reductase. Evidence for an intramolecular electron transfer pathway". F. Folgosa, C.M. Cordas, J.A. Santos, A.S. Pereira, J.J.G. Moura, P. Tavares, I. Moura. Biochemical J. ChemBio, 438: 485-494 (2011).

5. "Low-spin heme b3 in the catalytic center of nitric oxide reductase from Pseudomonas nautica". C.G. Timóteo, A.S. Pereira, C.E. Martins, S.G. Naik, A.G. Duarte, J.J.G. Moura, P. Tavares, B.H. Huynh, I. Moura. Biochemistry, 50: 4251-4262(2011).

Course lectures

General Biochemisty; Analytical Biochemistry.

Relevant positions taken at National and International levels

Member of the Directive Board of the International Doctoral Programme Radiation Biology and Biophysics

Member of the Executve Board of the International Doctoral Programme Radiation Biology and Biophysics

MC Member to COST Action MP1002: "Nano-scale insights in ion beam cancer therapy – Nano-IBCT".

Participation in national and international education networks

International Doctoral Programme Radiation Biology and Biophysics

Ana Cristina Malheiro Casimiro

Staff member since: 1999

Expertise field: Mathematics

5 most relevant papers/books/book chapters from 2008 to 2014

A. Casimiro, C. Florentino, S. Lawton, A. Oliveira, "Topology of moduli spaces of free group representations in real reductive groups'', Forum Math, DOI: 10.1515/forum-2014-0049.

Carlos Florentino, Ana Cristina Casimiro, "Stability of affine G-varieties and irreducibility in reductive groups", International Journal of Mathematics, Vol. 23, No. 8 (2012), 1250082 (30 pages) World Scientific Publishing Company, DOI: 10.1142/S0129167X12500826

A. Casimiro and C. Rodrigo. First variation formula and conservation laws in several independent discrete variables. Journal of Geometry and Physics, Volume 62, Issue 1, January 2012, Pages 61-86

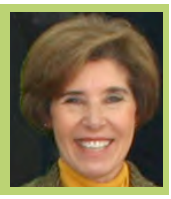
A. C. Casimiro, J. M. Muñoz Porras, F. J. Plaza Martín, "Stability on Sato Grassmannian. Applications to the moduli of vector bundles", Journal of Geometry and Physics, 58 (3), p.402-421, Mar 2008 doi:10.1016/j.geomphys.2007.11.011

A. C. Casimiro, J. M. Muñoz Porras, F. J. Plaza Martín, "Quotients on the Sato Grassmanian and the moduli of vector bundles", J. Phys. A: Math. Theor., 41 (2008), 194004 http://stacks.iop.org/1751-8121/41/194004

Course lectures

Calculus

Maria Luisa Dias de Carvalho de Sousa Leonardo



Staff member since: 2013

Expertise field: X Ray Spectrometry

Nº of citations: 1500

H impact factor: 20

5 most relevant papers/books/book chapters from 2008 to 2014

P. Anacleto, H. M. Lourenço, V. Ferraria, C. Afonso, M. L. Carvalho, M.F. Martins, M. L. Nunes, "Total Arsenic Content in Seafood Consumed in Portugal", Journal of Aquatic Food Product Technology, 18, 32-45 (2009)

M. Manso and M.L.Carvalho, "Application of Spectroscopic techniques for the study of paper documents: a survey", Spectrochimica Acta Part B: Atomic Spectroscopy 64, 482-490 (2009)

D. Guimarães, M.L. Carvalho, V. Geraldes, I. Rocha, L.C. Alves, J.P. Santos, "Lead in liver and kidney of exposed rats: aging accumulation study", Trace elements in Medicine and Biology, doi 10.1016/j.jtemb.2012.02.006

Tânia Magalhães, M. L. Carvalho, A. Von Bohlen and M. Becker, “Statistical study on trace elements behaviour in cancerous and healthy tissues of colon, breast and stomach: TXRF applications”, Spectrochmica Acta B, 65, 493–498 (2010)

Willemien Anaf, T. M. Amorim, M. L. Carvalho, Van Grieken and Karolien De Wael, “Characterization of airborne particles and gaseous pollutants in the Museo Nacional do Azulejo, Lisbon”, Environmental Science and Pollution Research, DOI 10.1007/s11356-012-1086-7 (2012)

Course lectures

Física I

Relevant positions taken at National and International levels

Scientific Coordinator of Atomic Physics Centre since 2005

Administrative Commission f Physics Department University of Lisbon

Vice-President of European Association of X Ray Spectrometry (EXSA) (2004-2008)

Coordinator of the Commission of Biennale award of EXSA, “Young Scientist on X-Ray Spectrometry”, since 2004

Member of Pedagogic Council of Faculty of Sciences (2006-2009)

Member of disable student at the University since 2000

Coordinator of graduation in Physical Engineering at University of Lisbon (2006- 2008)

Participation in national and international education networks

1

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

4

Paula Alexandra da Costa Amaral

Staff member since: 1991

Expertise field: Optimization

Nº of citations: 17

H impact factor: 3

5 most relevant papers/books/book chapters from 2008 to 2014

Amaral, P., I. Bomze, and J. Júdice. “Copositivity and constrained fractional quadratic problems.” Mathematical Programming. 1.1 (2014): 1-26.

Hendrix, Eligius M. T., Leocadio G. Casado, and Paula Amaral. “Global Optimization Simplex Bisection Revisited Based on Considerations by Reiner Horst.” Lecture Notes in Computer Science - ICSSA2012. 7335 (2012): 159-173.

Pais, Tiago, and Paula Amaral. “Managing the tabu list length using a fuzzy inference system: an application to examination timetabling.” Annals of Operations Research. 194 (2012): 341-363.

Amaral, P., L. M. Fernandes, J. Júdice, and H. D. Sherali. “On optimal zero-preserving corrections for inconsistent linear systems.” Journal of Global Optimization. 45 (2009): 645-666.

Amaral, P., J. Júdice, and H. D. Sherali. “A reformulation-linearization-convexification algorithm for optimal correction of an inconsistent system of linear constraints.” Computers and Operations Research. 35 (2008): 1494-1509.

Course lectures

Calculus, Nonlinear Optimization, Operations Research

Relevant positions taken at National and International levels

Member of the program committee of international conferences; Chair of the organizing committee of ESGI101, ENSPM14, ICCOP2013, Optimization2011. Member of the board of the south delegation of SPM, member of the board of APDIO.

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

Supervision of MSc thesis in Mathematics.

Ana Cristina Gomes Silva

Staff member since: First and since 1992 as Trainee Assistant, than after Master Degree (pre-Bolonha) as Assistant and since 2003 as Assistant Professor.

Expertise field: Nonlinear optics; Ultrafast phenomena (nano, pico and femtoseconds); Laser ablation and desorption (ns, ps); Ultrafast nonlinear spectroscopy; Photoelectron spectroscopy of Synchrotron radiation; Growth nanostructures processes in UHV (such as C60, Sn islands); Nanostructures (0D, 1D and 2D, such as C60, SWCNT´s, NiNW's, and metallic nanostructures) properties and production; Self-limited oxidation processes, Atomic layer deposition (ALD), Surface science, UHV, AES, LEED, TPD.

Nº of citations: 4-5

H impact factor:

RG score: 11.47

5 most relevant papers/books/chapter books from 2008 to 2014

Jacob J, Silva Ana, Fleisher K., McGilp J., “Optical second-harmonic generation studies of Si (111) -Ö3 x Ö3 Ag and Si(111) – 3 x 1- Ag, grown on vicinal Si(111)”, Physica Status Solidi (C) Current Topics In Solid State Physics, 5, 8 (2008) 2649

Silva AG, Pedersen K, Li ZSS, Morgen P, “Oxidation of the surface of a thin amorphous silicon film” Thin Solid Films, 520, 2 (2011) 697

Bundaleski N, Shaw BJ, Silva AG, Moutinho AMC, Teodoro OMND, “Novel Approach to the Semi-Empirical Universal Theory for Secondary Electron Yield”, Scanning 33 (2011) 1-4

Silva Ana G, Bundaleski Nenad, Moutinho Augusto M. C, Teodoro Orlando M. N. D “Dynamics of water adsorption on TiO2 monitores by work function spectroscopy” Applied Surface Science, 258, 6 (2012) 2006

Bundaleski N, Trigueiro J, Silva AG, Moutinho AMC, Teodoro OMND, “Influence of the patch field on work function meas-

urements based on the secondary electron emission", Journal of Applied Physics, vol 113, 18 (2013) 183720

Course lectures

Lectures, Laboratory Classes and Exercises Classes

1) Nanotechnology (4th Year of Master in Physics Engineering and Master in Biomedical Eng.)

2) Nonlinear Optics (5th Year of Master in Physics Engineering)

3) Solid State Physics (3rd Year of Master in Physics Engineering)

4) Electromagnetism (2nd Year of Master in Physics Engineering and Master in Biomedical Eng.)

5) Waves and Vibrations (2nd Year of Master in Physics Engineering and Master in Biomedical Eng.)

6) Thermodynamics (2nd Master in Physics Engineering)

7) Mechanics (2nd Year of Diploma in Physics Engineering)

8) Physics III – Electromagnetism for other Masters Courses of FCT/UNL, including Master in Materials Engineering.

9) Physics II – Thermodynamics for the other Masters courses of FCT/UNL including Master in Materials Engineering and Master in Micro and Nanotechnology Engineering.

10) Physics I – Mechanics for the other Courses of FCT/UNL.

11) Supervision of 7 students in a single period within "UROP- Undergraduate research opportunity program" (2014)

Relevant positions taken at National and International levels

At National/Academic Level

Elected for the Board of "Promotion of Talent 2014" of FCT/UNL

Appointed to represent the Physics Department in the Pedagogical Council of FCT/UNL (2009-2014)

Member of Physics Department Council (2009-2014); Appointed.

Member of Scientific Commission of Master In Physics Engineering; Appointed.

Member of Pedagogic Commission of Master in Physics Engineering; Appointed.

National Delegate for the "Nanoscience and Nanostructures Division- NSD" of International Union of Vacuum Science (IUVSTA), since 2009.

At International Level

Officer of the International Union of Vacuum Science (IUVSTA) since 2013.

Elected secretary of the Nanoscience and Nanostructures Division (NSD) for 2013-2016.

Member of Organizing Committee: Conference: IVC-19 2013 Paris

Scientific Committee /ICSS-15/ICN+T (2013)

Member of Steering Committee of next ICN+T (2013-2016).

Awards received

European Marie Curie Individual Fellowship within Training Mobility Researchers (TMR) for 2 years (1998-99) within PhD works in Max-Born Institute für Nichtlineare Optik und Kürzzeirspektroskopie, Berlin (Germany).

Participation in national and international education networks

Guest Professor in Aalborg University (Denmark) in Physics and Nanotechnology Institute. Collaboration in the preparation of the "Nanofabrication Course"– Detailed description of all procedures regarding the experimental component step-by-step in order to find a suitable and a most appropriate procedure for the students to succeed to fabricate and to measure the properties of MOS in two days (2012).

Guest Professor in Aalborg University (Denmark) in Physics and Nanotechnology Institute. To project and new projects on nonlinear optical physics in order to implement a new laboratory in FCT/UNL (2013).

Joint supervision of MSc and PhD Thesis with Industry and International partners in the last 5 years

"Micro-electromechanical Systems- Fabrication and Characterization of Micro-cantilevers", Sofia de Lemos Henriques Ferreira (Master in Physics Engineering).

International Partner: Department of Physics and Nanotechnology, Alborg University (Denmark) joint supervision with Kjeld Pedersen (2nd semester 2013-2014).

"Nonlinear optics on bio-type structures", Mafalda Gonçalves Oliveira (Master in Biomedical Engineering), International Partner: Department of Physics and Nanotechnology, Alborg University (Denmark) joint supervision with Kjeld Pedersen – next semester (2nd Semester 2014-2015).

"Metal clusters as transducers for nano-sensors: production and characterization", Francisco Brasil (Master in Physics Engineering), International Partner: Department of Physics and Nanotechnology, Alborg University (Denmark) joint supervision with Vladimir Popok – next semester (2nd Semester 2014-2015).

*** Joint supervision of Undergraduate Research Trainees with International Partner****

"Quadrupole Mass Spectrometry (QMS)" Mário Xavier; International Partner: Department of Physics of Arhus University (Denmark) joint supervision with Zheshen Li (2013-2014).

"Low Energy Electron Diffraction (LEED)", Miguel Baeta; International Partner: Department of Physics of Arhus University (Denmark) joint supervision with Zheshen Li (2013-2014).

"Program to control the Monochromator in a Beamline in Synchrotron Facility", José Romeo; International Partner: Department of Physics of Arhus University (Denmark) joint supervision with Zheshen Li (2013-2014).

Joaquim Pina

Staff member since: October 2003

Expertise field: Economics

Nº of citations: 104

H impact factor: 2

5 most relevant papers/books/book chapters from 2008 to 2014

Soares, J. O. and Pina, J. P., 2014, "Credit risk assessment and the information content of financial ratios: a multi-country perspective", Wseas Transactions on Business and Economics, 11, pp. 175-187.

Catalão-Lopes, M. and Pina, J., 2012, "Ética Empresarial: Donativos e Risco", in Riscos, Segurança e Sustentabilidade, (eds.) C. Guedes Soares, A. P. Teixeira, C. Jacinto. Lisboa.

Soares, J. O., Catalão-Lopes, M., Ribeiro, M and Pina, J. P., 2011, "Quantitative versus qualitative criteria for credit risk assessment", Frontiers in Finance and Economics, 8 (1), pp. 69-87.

Pina, J. P., 2009, "Do International Spillovers Matter for Long Run Neutrality?", Economics Bulletin, 29 (3), pp. 1566-1583

Soares, J. O., Catalão-Lopes, M. and Pina, J. P., 2008, New Developments in Financial Modelling, Editors, Cambridge Scholars Publishing

Course lectures

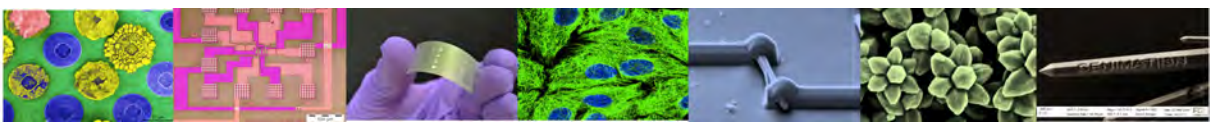
Macroeconomics and Globalization, Microeconomics, Economics, Business Management, Entrepreneurship

Relevant positions taken at National and International levels

Senior Economist at Economic Research Department of Banco de Portugal

Awards received

Prize "Unisys Investigação" for best study in Optimization and Economic Analysis graduate courses



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