



# 1<sup>st</sup> Cluster Workshop in Materials and Nanotechnology

## Program

### Wednesday 4<sup>th</sup>

13:30-14:00 Workshop Registration

14:00-14:20 Opening

#### SESSION 1 *Chairman: François Weiss (Grenoble-INP, France)*

14:20-15:00 **IC1:** Alain M. Jonas (Université Catholique de Louvain, Belgium)  
“Hybrid Nanostructured Functional Layers: From Confined Polymer Crystallization to Plastic Memory Devices”

15:00-15:40 **IC2:** José Gaspar Martinho (CQFM, IST, ULisboa)  
“Photochromic Materials Activated by Two-Photon Excitation”

15:40-16:00 **OC1:** Frederico Ferreira (IBB, IST, ULisboa)  
“Electrospun Nanofiber Based Scaffold Platform for Stem Cell Alignment”

16:00-16:30 Coffee Break / Poster Session

#### SESSION 2 *Chairman: Rui Vilar (IST-MN, IST, ULisboa)*

16:30-17:10 **IC3:** Pedro L. Granja (INEB/ICBAS, UPorto)  
“Engineering Cell-Material Interactions at the Molecular Level”

17:10-18:00 **Round Table:** “New opportunities in Materials Science education at post graduated level”  
- François Weiss (Grenoble-INP, France)  
- Wolfgang Donner (TU Darmstadt, Germany)  
- João Carlos M. Bordado (IST, ULisboa)  
- António Sousa Correia (Ordem dos Engenheiros)  
- Rui Vilar (IST-MN, IST, ULisboa)

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## Thursday 5<sup>th</sup>

### SESSION 3 *Chairman: Manuel Almeida (CTN, IST, ULisboa)*

9:00-9:40 **IC4:** João Carlos M. Bordado (IST, ULisboa)  
“Antifouling Surfaces: New Immobilized Biocide Systems”

9:40-10:20 **IC5:** Jorge Morgado (IT, IST, ULisboa)  
“Molecular Wires Based on Zinc-Porphyrins: Preparation and Electrical Properties Assessed by STM”

10:20-10:50 Coffee Break / Poster Session

### SESSION 4 *Chairman: Rui Almeida (ICEMS, IST, ULisboa)*

10:50-11:30 **IC6:** Albano Cavaleiro (SEG-CEMUC, UCoimbra)  
“The Importance of Structural Arrangement on the Friction Performance of Transition Metal Dichalcogenides Sputtered Films”

11:30-12:10 **IC7:** Manuel Freitas (Dep. Mechanical Engineering, IST, ULisboa)  
“AZ31 Magnesium Alloy Elastoplastic Behavior Under Multiaxial Loading Conditions”

12:10-12:30 **OC2:** Nuno Silvestre (Dep. Mechanical Engineering, IST, ULisboa)  
“Computational Modelling of the Compressive Behaviour of CNT-Reinforced Aluminium Composites”

12:30-14:00 Lunch

### SESSION 5 *Chairman: José Gaspar Martinho (CQFM, IST, ULisboa)*

14:00-14:40 **IC8:** João Rocha (CICECO, UAveiro)  
“Light at the End of the Tunnel”

14:40-15:20 **IC9:** Rui Almeida (ICEMS, IST, ULisboa)  
“YAG:Ce<sup>3+</sup> Photoluminescence Tuned by 1-D Photonic Crystal Microcavity for White Light Generation”

15:20-16:00 **IC10:** Manuel Almeida (C2TN, IST, ULisboa)  
“Metals Based on Neutral Molecular Species: The New Paradigm and its Application to Plastic Electronics”

16:00-16:30 Coffee Break / Poster Session

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SESSION 6 Chairman: Jorge Morgado (IT, IST, ULisboa)

16:30-16:50 **OC3:** Elena Tatarova (IPFN, IST, ULisboa)  
“Free Standing Graphene Synthesis Using Microwave Plasmas”

16:50-17:10 **OC4:** António Gonçalves (CTN, IST, ULisboa)  
“New Thermoelectric Materials: The Disorder Paradigm”

17:10-17:50 **IC11:** Paulo Freitas (INESC-MN/INL, IST, ULisboa)  
“Magnetoresistive Sensors: from Industrial to Biomedical Applications”

20:00 Workshop Dinner: Museu da Cerveja (Terreiro do Paço)

## Friday 6<sup>th</sup>

SESSION 7 Chairman: Pedro Granja (INEB, UPorto)

9:00-9:40 **IC12:** Laura Ilharco (CQFM, IST, ULisboa)  
“The Versatility of Sol-gel Processing in Tailoring Silica-Based Materials for Specific Applications”

9:40-10:20 **IC13:** Verónica Bermudez (CQ-VR, UTAD)  
“Self-Directed Assembly in Non-Bridged Silsesquioxanes”

10:20-10:50 Coffee Break / Poster Session

SESSION 8 Chairman: Albano Cavaleiro (SEG-CEMUC, UCoimbra)

10:50-11:30 **IC14:** Elvira Fortunato (CENIMAT/I3N, FCT, UNL)  
“Thin Film Transistors Based on Metal Oxide Semiconductor Thin Films and Nanoparticles”

11:30-11:50 **OC5:** Tânia Ribeiro (CQFM, IST, ULisboa)  
“Highly Photostable Fluorescent Silica Particles for Laser Scanning Imaging Applications”

11:50-12:10 **OC6:** Pedro Paulo (CQE, IST, ULisboa)  
“Large Fluorescence Enhancements of Phthalocyanine in (Lipid Bilayer)-Polyelectrolyte Coated Gold Nanoparticles”

12:10-12:30 **OC7:** Rui Pinto (INESC-MN/CQFM, IST, ULisboa)  
“Exciton Dynamics in Organic Materials: High Quantum Efficiency in Charge-Transfer Interfaces”

12:30-14:00 Lunch

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<b>SESSION 9</b>	<i>Chairman: Fátima Montemor (ICEMS, IST, ULisboa)</i>
14:00-14:40	<b>IC15:</b> François Weiss (Grenoble-INP, France) “Chemical Routes for Coatings by Design. From “Paint and Heat” to Today”
14:40-15:00	<b>OC8:</b> Tiago Monteiro (INESC-MN, IST, ULisboa) “Silicon Probes as Biosensors for Intra- and Extracellular Measurement of pH for Early Detection of Dysplasia”
15:00-15:20	<b>OC9:</b> Vânia André (CQE, IST, ULisboa) “Bio-MOFs As Potential Drug Delivery Materials – A New Approach To Traditional MOFs”
15:20-15:40	<b>OC10:</b> Sónia Eugénio (ICEMS, IST, ULisboa) “Electrodeposition of Dendritic Transition Metal Films and Their Application as Electrodes for Supercapacitors”
15:40-16:00	<b>OC11:</b> Graça Brotas (IT, IST, ULisboa) “Synthesis of Cross-linkable P3HT Derivatives and Applications in Photovoltaic Cells”
16:00-16:20	<u>Coffee Break</u>
<b>SESSION 10</b>	<i>Chairman: Amélia Almeida (ICEMS, IST, ULisboa)</i>
16:20-16:40	<b>OC12:</b> Nikolay Polushkin (ICEMS, IST, ULisboa) “Current-Induced Magnetization Switching in a Single Ferromagnetic Element”
16:40-17:00	<b>OC13:</b> António Maurício (CERENA/CEPGIST, IST, ULisboa) “X-ray MicroCT: Non-Destructive Tool for Material Characterization in Art and Science”
17:00-17:20	<b>OC14:</b> Reinhard Schwarz (ICEMS, IST, ULisboa) “Raman Spectroscopy, XPS and XRD of Ferroelectric Domains in Pulsed Laser Deposited Na <sub>0.5</sub> K <sub>0.5</sub> NbO <sub>3</sub> Films”
17:20-17:40	<b>OC15:</b> Maria Norberta Pinho (ICEMS, IST, ULisboa) “Sub-Micron Tailoring of Bi-Soft Segment Asymmetric Polyurethane Membrane Surfaces with Enhanced Hemocompatibility Properties”
17:40-18:00	Student poster award. Closing