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FACULDADE DE CIÊNCIAS E TECNOLOGIA
UNIVERSIDADE NOVA DE LISBOA

Materials Science Department – CENIMAT/I3N

Chromogenics and paper electronics

CENIMAT/I3N – Microelectronics and Optoelectronics

Luís Pereira

Assistant Professor

2008 – PhD in Microelectronics and Optoelectronics, UNL

2012- Assistant Professor FCT/UNL

144 ISI publications

>3200 citations, H factor - 30

Objectives

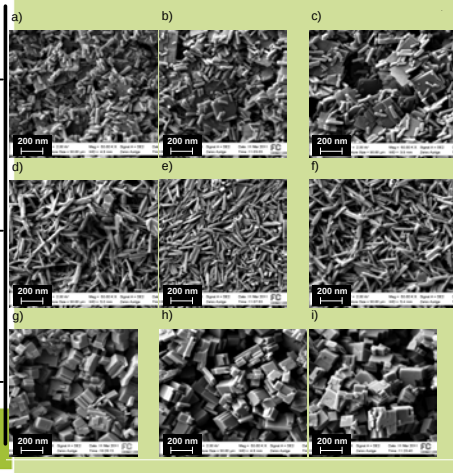
Nanoparticles/Nanocomposites

Hybrid materials and electronic devices

Chromogenic materials and devices

Paper electronics

Printing deposition techniques

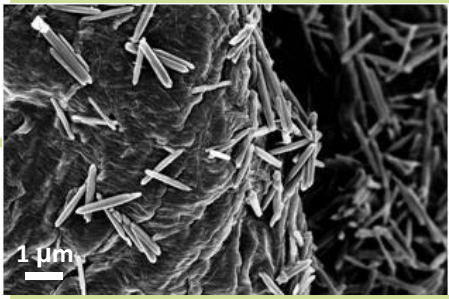


Methodology

The work includes the development of proper sustainable/recyclable functional materials and nanocomposites namely anodic/cathodic electrochromics, solid state electrolytes, inorganic semiconductors and conductive layers. All this is being done following the physical (sputtering/e-beam, nanofab platform) and chemical routes (sol-gel, ink-jet/screen printing), covering so a broad range of applications including electrochemical transistors, memories, CMOS and electrochromic devices for low cost disposable/recyclable systems. Paper substrates and printing technologies are the focus and so development of proper precursors and functional inks are also foreseen.

Expected Results

Materials – Hybrid dielectrics and electrolytes (solid state), nanostructured chromogenic materials and inorganic semiconductors (nanoparticles, nanowires, nanotubes) and funcional cellulose nanocomposites.
Devices – Hybrid electrochemical transistors, memories, CMOS and electrochromic devices for low cost/disposable or recyclable electronic systems, smart labels, business cards, among others.
Processes – Development on functional inks and proper deposition techniques compatible with large area printing on paper or polymer substrates.



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