

Chemistry Department

## Chromogenic Materials

REQUIMTE / Photochemistry



FACULDADE DE  
CIÊNCIAS E TECNOLOGIA  
UNIVERSIDADE NOVA DE LISBOA



ynvisible

THINGS ALIVE.



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1999 - PhD, Instituto Superior Técnico, Lisbon, Portugal  
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## Objectives

- Development of *smart-materials* with chromogenic functions (photochromism, electrochromism, luminescence)
- Nanotechnology applications in photochemistry
- Industrial applications (QREN projects)

## Methodology

- UV-Vis Absorption and Fluorescence Spectroscopy
- Time-resolved Luminescence
- Laser Flash Photolysis
- Microscopy Techniques
- Dynamic Light Scattering
- Calorimetry
- Raman Spectroscopy

## Expected Results

- Synthesis and characterization of photochromic and luminescent inorganic materials (zeolites, glass);
- Development of electrochromic devices (collaboration with Ynvisible);
- Photochromism in soft-materials;
- Implementation of photochromic materials in Industry.

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QREN Projects (Invisible Network);

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From left to right, Fernando Pina, Maria J. Melo, César A. T. Laia, A. Jorge Parola and João C. Lima

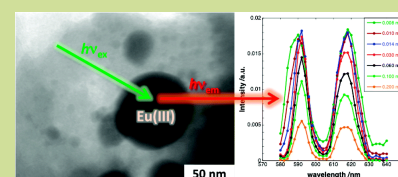


Figure 13. Photos of a flexible electrochromic device built with the tungsten oxide printed films on PET/ITO in on/off states.

