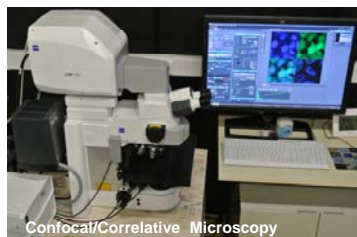


Advanced Materials Characterization at CENIMAT/I3N



Confocal/Correlative Microscopy



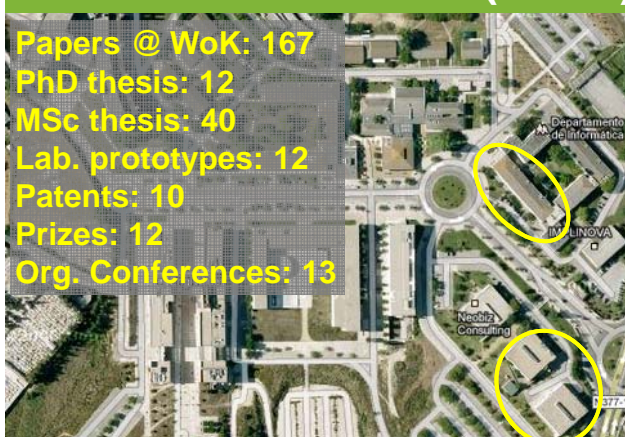
Bruker unit for X-ray diffraction (high/low temperatures)



NMR Laboratory

Cenimat in numbers (12-13)

Papers @ WoK: 167
 PhD thesis: 12
 MSc thesis: 40
 Lab. prototypes: 12
 Patents: 10
 Prizes: 12
 Org. Conferences: 13



Scientific areas



Bio/Paper Batteries
 Bio/Nano/Paper Electronics
 Funcional Nanoparticles
 Nano/Chromogenics
 Microfluidics/Lab-on-Paper
 Plasmonics
 Solar Cells

Thermoelectrics
 Transparent Conductive Materials
 Liquid Crystals
 Nano/Cellulosic Systems
 Polymeric Based Materials
 Elastomers
 Biological Systems
 Rheology (Rheo)

Nuclear Magnetic Resonance
 Computational Fluid Dynamics
 Metal Alloys
 Functional Graded Materials
 Cultural Materials
 Crystal Chemistry
 Ceramics and Glass Materials
 Recycling of Materials

Characterization tools



SEM/FIB and EDS

X-Ray Diffraction (temperature, micro diffraction, grazing, texture, stress analysis)

Thermal Analysis - DTA/DSC/TG (-170 - 2000 °C)

Optical Microscopy with Fluorescence

Confocal Microscopy (Laser lines: 405/488 nm)

Electron Microscopy (SEM-FIB and EDS)

Correlative Microscopy

NMR (High resolution, Solids, Diffusion and Micro-Imaging)

Rheology (Electro, Optical and High Pressure options)

Mechanical Testing (tensile, micro/macro-hardness, impact)

X-ray Fluorescence

Melt Spinning

Hall Effect and Kelvin Probe

FTIR with ATR

UV-vis-NIR Spectrophotometry

Contact Angle

Spectroscopic Ellipsometer

Potenciostat

Profilometry

AFM

Dielectric Spectroscopy (frequency and time domain)

Ferroelectric Hysteresis

Thermally Stimulated Discharge Currents

Dynamic Light Scattering

Melt Flow Index

Automatic Ubbelohde Viscometer

Materialography

Running Projects



Recent publications



A.P. Duarte, J.F. Coelho, J.C. Bordado, M.T. Cidade, M.H. Gil, *Progress in Polymer Science*, 37(8), 1031 (2012).
 J.P. Canejo, J.P. Borges, M.H. Godinho, P. Brogueira, P.I.C. Teixeira, E.M. Terentjev, *Advanced Materials*, 20(24), 4821 (2008).
 B. Veigas, R. Branquinho, J. V. Pinto, P. J. Wojcik, R. Martins, E. Fortunato, and P. V. Baptista, *Biosensors & Bioelectronics*, vol. 52, pp. 50-55, Feb 15 2014.
 J. Loureiro, N. Neves, R. Barros, T. Mateus, R. Santos, S. Filonovich, S. Reparaz, C. M. Sotomayor-Torres, F. Wycisk, L. Divay, R. Martins, and I. Ferreira, *Journal of Materials Chemistry A*, vol. 2, pp. 6649-6655, 2014 2014.
 S. Pereira, A. Goncalves, N. Correia, J. Pinto, L. Pereira, R. Martins, and E. Fortunato, *Solar Energy Materials and Solar Cells*, vol. 120, pp. 109-115, Jan 2014.
 M.L. Coutinho, V.S.F. Muralha, J. Mirão, J.P. Veiga, *Applied Physics A*, 114 (2014) 695-703.