

Using XRF mapping and micro-XAFS to explore the spatial distribution and stability of nanoparticles injected in tissues by Maria Katsikini (School of Physics, Aristotle University of Thessaloniki)

Tuesday 4 February 2025 16:00 (30 minutes)

A case study on the application of X-Ray Fluorescence (XRF) mapping and micro-X-ray Absorption Fine Structure (μ -XAFS) spectroscopy for investigating the spatial distribution and stability of Gd_{0.6}Eu_{0.4}VO₄ nanoparticles injected into mouse ear pinnae will be presented. The measurements were carried out at the BESSY-II Storage Ring of the Helmholtz Zentrum für Materialien und Energie and were supported by the CALIPSO-plus project (HORIZON 2020), the predecessor of NEPHEWS. The process, from the conceptualization of the experiment to the publication of the paper, will be briefly outlined. Additionally, issues related to sample preparation, measurement conditions and the information extracted through data evaluation will also be discussed.

Other scientists who contributed to this work:

* XAFS/XRF measurements: Eleni Proiou (MSc Thesis), Fani Pinakidou, Eleni C. Paloura (Aristotle University of Thessaloniki)

* Beamline Scientist: Götz Schuck (BESSY-II, Helmholtz Zentrum Berlin)

* Preparation of nanoparticles and injection into tissues: Nicolas Pétri, Thierry Gacoin, Corinne Laplace-Builhé, Antigoni Alexandrou (Laboratoire d'Optique et Biosciences & Laboratoire de Physique de la Matière Condensée, École Polytechnique; Photon Imaging and Flow Cytometry, CNRS, INSERM, Gustave Roussy Cancer Campus, France)