Atom Probe Tomography for the analysis of nanomaterials

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2nd October 2026
11:00 – 11:45 AM (CEST)

For registration, please complete the form available at this link

TOPIC / ABSTRACT

Controlling size, shape, and composition of nanoparticles is required to improve their physical properties. **Dopants and impurities distribution** may affect lattice strains, electronic band structure and eventually catalytic selectivity and activity of nanoparticles; therefore, three-dimensional sub-nanometer resolution elemental mapping is key. **Atom probe tomography (APT) is an enabling characterization tool for mapping the elemental distribution in nanostructured materials** due to its unique combination of three-dimensional (3D) capability, sub-nanometre spatial resolution, and a detection sensitivity in the range of tens of parts-per-million, including for light species such as carbon or boron.

In this presentation, I will **introduce the technique of APT**, and discuss the progress in the **development of specimens preparation techniques** using chemical fixation to enable the analysis of freestanding nanoparticles, nanorods or nanosheet, as well as powder particles. I will **showcase examples** where insights from APT were used to rationalise the properties of nanoaerogels and improve their design to optimise their electrocatalysis properties.

Finally, **frontiers in APT analysis of cryo-fixated samples** will be discussed.

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