
# Advanced characterization of nanomaterial

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11:00 – 11:45 AM (CEST)

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## TOPIC / ABSTRACT

**Characterization of nanomaterials is a key challenge in many fields** of application such as chemistry, material sciences, cosmetics, medicine. Understanding structure at submicronic scale and increasingly strict regulatory requirements call for **high performance three-dimensional characterization tools.** At nanomaterial scale, there are multiple observation techniques which are generally destructive. **X-Ray Microscopy (XRM) addresses these new challenges while keeping the samples intact**. This enables time-lapse inspection, ageing investigations, and correlative analysis with other imaging instruments.

This webinar will **present unique instruments in x-ray microscopy and x-ray tomography** capable of imaging volumes at resolution from millimeter scale down to a few tens of nanometers. We will specifically explore the **UltraXRM** which is a laboratory X-Ray Microscope offering resolution down to 50 nm, with image quality comparable to synchrotron imaging.

There are many application areas: **nanoparticles in pharmaceutical devices, Li-ion batteries or fuel cells, porous materials or nanostructured composites, nanoparticle agglomeration in biologic tissues**. Non-destructive and volumetric analysis allows to characterize a huge amount of data comparing to other technics, and gives reliable insights about size distribution, orientation, position of nanoparticles, these statistical data are typically used to feed predictive numerical models.

Finally, we will present the advances achieved over the last 10 years at ZEISS through the **integration of solutions based on artificial intelligence**.

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