

## What is new in X-ray imaging at ESRF?

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X-ray characterization provides opportunities for scientists in the exploration of materials and living matter in many fields: chemistry, material sciences, archaeology and cultural heritage, structural biology and medical applications, environmental sciences, information science and nanotechnologies. A wide range of techniques are available one of which is X-ray imaging. This term is usually associated with absorption radiography but, in fact, it is related to any X-ray technique that provides spatially resolved information. In this overview, common 3D X-ray imaging i.e. computed tomography that reveals 3D microstructure of materials from the micro to the nano-scale will be presented. The ultimate state-of-the-art instrumentation offered by the ESRF, especially in terms of spatial and temporal resolution, will be addressed based on examples from the field of materials science studies. Furthermore, we will explore the field of micro and nano-chemical mapping. Materials and environmental sciences examples will detail and illustrate the benefits and limitations of this technique with ESRF-EBS.

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