Oral presentation

Laboratory high pressure XRD utilizing MetalJet Xray sources

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High-end crystallography techniques such as single crystal XRD, high pressure XRD and SAXS rely heavily on the x-ray source brightness for realizing smaller and brighter beams to achieve acceptable signal to noise with acceptable measurement time on ever increasingly difficult samples. Traditional x-ray tubes are typically limited in brightness by when the e-beam power density melts the anode. The liquid-metal-jet technology has overcome this limitation by using an anode that is already in the molten state. Since the liquid-metal-jet technology was introduced over 10 years ago, it has moved from prototypes into fully operational and stable X-ray tubes empowering a wide variety of applications in labs all over the world. As MetalJet utilizes a liquid electron target the common (anode) materials are Gallium, Indium and Tin thus enabling extremely intense X-ray beams of for example 9keV or 24keV. In this communication we will go through a number of custom crystallography solutions and how small and bright X-ray beams can enable previously unattainable experiments to be performed also in the lab. A special focus will be put on high pressure XRD and how high energy (24 keV) beams approaching 10μm size can realised in the home laboratory.