European XFEL Workshop

Opportunities for microfluidic devices at Free-Electron Lasers

Overview of the European XFEL and the SPB/SFX Instrument: Opportunities for microfluidic sample delivery (and more)

Adrian Mancuso[1]

[1] European XFEL GmbH, Schenefeld, Germany

The European X-ray Free-Electron Laser (XFEL) will offer first light to users in the second half of 2017 and promises to be the brightest source of hard X-rays available for a wide variety of experiments. This unique capability in turn promises to be extremely valuable to the determination of structure using scattering techniques—notably in crystallography, as well as providing the potential to determine the structure of single (non-crystalline) particles.

In this presentation, I will introduce the European XFEL and its instrumentation that supports structure determination experiments—the Single Particles, Clusters and Biomolecules and Serial Femtosecond Crystallography (SPB/SFX) Instrument. The basic components of optics, sample delivery and detector(s) will be described, with an outlook to the opportunities for microfluidics to exploit the high repetition rate of the European XFEL for new science.