Real Time Phase Transitions Using X-Ray Spectroscopy

Researchers around Jens Biegertin, in Spain are investigating real time behavior of phase transitions using X-Ray spectroscopic techniques.

X-Ray spectroscopy can give element specific information about electrons in a material as well as determine information about the structure (how far are atoms apart). The researchers apply new light sources using high harmonic generation that produce ultrashort attosecond length pulses that span a wide energy range over hundreds of eV in the soft X-ray regime (specifically in the water window a region from around 280eV to 530eV where water is transparent, but carbon and organic materials are not). They are able to correlate the electronic information and material structure in real time and want to apply this knowledge for better understanding of phase transitions for solids, liquids and gases.

Featured Paper/Publication: Dispersive soft x-ray absorption fine-structure spectroscopy in graphite with an attosecond pulse, Optica, 2018

Reference Lab: Jens Biegert, University of Salamanca, Spain
Website, Video Intro

Featured Product: PIXIS-XO, SOPHIA-XO