



Abstract ID : 21

Challenges in XPDF Analysis of High Pressure-Temperature Metal-Organic Frameworks

Content

Real-space total X-ray scattering analysis of metal-organic frameworks (MOFs) under extreme conditions presents unique experimental and interpretive challenges. Many factors hinder reliable data collection and analysis, including the inherently low X-ray scattering power of MOFs, the presence of pressure-transmitting media (PTM) introducing additional background scattering and structural interactions, and changes in the dimensions of the high-pressure chamber during compression and heating. This presentation will discuss strategies to mitigate these issues, and highlight pathways to extract meaningful structural insights into MOF stability and phase behavior under high pressure-temperature conditions.

Primary author: ROBERTSON, Georgina (ESRF)

Contribution Type: Invited

Submitted by ROBERTSON, Georgina on Thursday, 9 October 2025