WORKSHOP # 12 – Tuesday, May 5, 2026

Science Opportunities with the Advanced Materials Processes (AMP) beamline

Organizers: Lutz Wiegart (NSLS-II, Brookhaven National Laboratory
Jonathan Seppala, (National Institute of Standards and Technology)

The Advanced Materials Processes (AMP) beamline has been selected for construction as part of the NEXT-III sub-project B. AMP will provide state-of-the-art coherent and incoherent scattering and diffraction capabilities for materials research under real-world conditions and provides space for large sample environments and auxiliary characterization techniques. AMP targets science areas in transformative manufacturing, applications of high-performance polymers and composites, thin film fabrication for quantum materials and microelectronics as well as automated and autonomous material design and discovery. This workshop will discuss potential science cases and related technical requirements.

Start Time (ET)	Title	Speaker (Affiliation)
8:50	Welcome	
9:00	Introduction of the AMP beamline	AMP team (BNL)
9:30	In Situ Hybrid Additive Manufacturing of Functional Polymer Nanocomposites	Liheng Cai (Univ. of Virginia)
10:00	The Dynamics of Making and Breaking Polymer Networks	Benjamin Yavitt (Univ. Cincinnati)
10:30	Sound Bites	
10:45	*Break*	
11:15	XPCS Studies of Industrial Adhesives and Sealants	Stan Petrash (Henkel)
11:45	Deformation and creep of vitrimer composites	Bryan Vogt (Penn State Univ.)
12:15 – 1:45 pm	*Lunch Break / Poster Session (SUSC)*	
1:45	Exploring the Power of In-Operando Measurements During Advanced Sintering and High Temperature Material Processing	Jorgen Rufner (Idaho National Lab)
2:15	Real-time Characterization of the Morphology of High-Performance Engineering Thermoplastics During Additive Manufacturing via Synchrotron X-ray Diffraction	Kirt Page (Air Force Research Lab)
2:45	Sound Bites	
3:00	*Break*	
3:30	Exploring Frontier AI for Physical Experimentation	Esther Tsai (BNL)
4:00	Nuts and bolts of autonomous experimentation at the beamline	Howie Joress (NIST)
4:30	Wrap-up Discussion	
5:00	Adjourn	