13th International Workshop on Sample Environment at Scattering Facilities (ISSE)

Monday, 28 September 2026 - Friday, 2 October 2026

HYATT PLACE KNOXVILLE

Program

Oral Presentations

Session I: Standardization Efforts at and Across Facilities

This session will highlight efforts to standardize sample environment hardware, controls, SECoP implementation, metadata, documentation, safety, and operational practices. Contributions focused on improving interoperability, efficiency, reliability, and collaboration across facilities.

Session II: Soft Matter Sample Environments

This session will focus on sample environment technologies and techniques for soft matter research, including humidity control, rheology, flow cells, shear devices, temperature control, and other specialized auxiliary equipment. Contributions highlighting new capabilities, best practices, and experimental approaches for soft matter studies.

Session III: Novel Sample Environment Developments and Techniques

This session will highlight innovative sample environment technologies, instrumentation, and experimental techniques that expand scientific capabilities. Contributions featuring new equipment, creative engineering solutions, prototype systems, and emerging technologies for neutron and synchrotron research.

Session IV: High Pressure, Stress and Strain

This session will focus on sample environment technologies and experimental methods for high-pressure, stress, and strain studies. Topics may include pressure cells, uniaxial and multiaxial loading systems, in situ mechanical testing, combined sample environments, and new capabilities for neutron and synchrotron experiments.

Session V: Cryogenics and Magnet Systems

This session will explore recent developments in cryogenic and magnet technologies for neutron and synchrotron research, including new instrumentation, operational improvements, helium recovery and management, and innovative approaches to supporting low-temperature and high-field experiments.

Session VI: Novel Sample Environment Developments and Techniques

This session will showcase innovative sample environment technologies, instrumentation, and experimental techniques that expand scientific capabilities. Representative topics include new equipment, creative engineering solutions, prototype systems, and emerging technologies.

Session VII: Automation, Sample Changers and Remote Operations

This session will highlight advances in automation, remote operation, and automated sample handling that improve the efficiency, reliability, and accessibility of sample environment systems. Contributions featuring robotic sample changers, automated workflows, remote user support, controls integration, and other innovative technologies.

Session VIII: High Temperature Sample Environments

This session will focus on sample environment technologies for high-temperature experiments, including furnaces, laser heating, levitation, gas environments, and other advanced thermal systems. Contributions highlighting new developments, innovative techniques, challenging experiments, and improved capabilities.

Posters

Poster Topic I: Standardization Efforts at and Across Facilities

This poster session highlights initiatives that promote standardization in sample environment hardware, controls, SECoP implementation, metadata, documentation, safety, and operational practices. Posters describing collaborative efforts, shared designs, and approaches that improve interoperability and efficiency across facilities are invited.

Poster Topic II: High Pressure, Stress and Strain

This poster session focuses on developments in sample environment technologies and experimental methods for high-pressure, stress, and strain research. Featured work may include pressure cells, mechanical loading systems, in situ testing techniques, combined sample environments, and innovative engineering solutions.

Poster Topic III: Cryogenics and Magnet Systems

This poster session showcases advances in cryogenic systems, magnet technologies, and supporting infrastructure for low-temperature and high-magnetic-field experiments. Posters describing new capabilities, facility upgrades, helium management, and operational experiences are welcome.

Poster Topic IV: Soft Matter Sample Environments

This poster session explores sample environment technologies and experimental techniques for soft matter research. Areas of interest include humidity control, flow cells, rheology, shear devices, temperature control, auxiliary equipment, and novel experimental approaches.

Poster Topic V: Novel Sample Environment Developments and Techniques

This poster session features innovative sample environment technologies, instrumentation, and experimental techniques that expand scientific capabilities. Examples include new equipment, prototype systems, creative engineering solutions, and emerging technologies.

Poster Topic VI: Automation, Sample Changers and Remote Operations

This poster session highlights advances in automation, remote operation, and automated sample handling that improve the efficiency, reliability, and accessibility of sample environment systems. Posters may present robotic sample changers, automated workflows, controls integration, remote user support, and other enabling technologies.

Poster Topic VII: Facility & Community Update Posters

This poster session provides an opportunity for facilities to showcase recent developments, new capabilities, equipment upgrades, and operational improvements in their sample environment programs. Facilities are encouraged to share current projects, lessons learned, and future plans to foster collaboration and the exchange of ideas across the international sample environment community.

Open Discussions

Open Discussion I: User Support and Operational Best Practices

This discussion will provide an opportunity for participants to share experiences and best practices related to supporting users and operating sample environment programs.

Open Discussion II: Challenges and Opportunities for SE Programs

This discussion will explore the common challenges and future opportunities facing sample environment programs across research facilities. Participants are encouraged to share experiences, identify emerging needs, discuss opportunities for collaboration, and exchange ideas for advancing sample environment capabilities, operations, and user support.

Open Discussion III: Soft Matter Techniques and Best Practices

This discussion will provide a forum for sharing experiences and best practices in soft matter sample environments. Topics may include humidity control, flow cells, rheology, shear devices, auxiliary equipment, sample preparation, experimental challenges, and approaches for improving reliability, efficiency, and user support.

Open Discussion IV: Operating and Supporting 24/7 facilities

This discussion will focus on the challenges and best practices associated with operating and supporting sample environment systems at facilities with continuous user operations. Topics may include staffing models, on-call support, equipment reliability, preventive maintenance, troubleshooting and training.

Open Discussion V: Engineering Process and Document Control

This discussion will explore best practices for engineering processes and document control within sample environment programs. Topics may include design reviews, configuration management, documentation standards, revision control, knowledge transfer, quality assurance, and strategies for maintaining accurate and accessible engineering records across facilities.

Open Discussion VI: Experimental Safety Analysis Process

This discussion will provide a forum for sharing approaches and best practices for conducting experimental safety analyses for sample environment systems. Topics may include hazard identification, risk assessment, review processes, documentation, lessons learned, and strategies for balancing robust safety practices with efficient operations and risk-informed decision making when supporting increasingly complex experiments.

Open Discussion VII: Key Takeaways and Future Needs

This discussion will provide an opportunity to reflect on the key themes and lessons learned throughout the workshop while identifying future priorities for the sample environment community. Participants are encouraged to share ideas for new capabilities, opportunities for collaboration, standardization efforts, and topics that should be addressed at future ISSE workshops.

Workshop Sponsors

The success of ISSE 2026 is made possible through the generous support of our sponsors. Their commitment to the international sample environment community helps foster collaboration, innovation, and the exchange of ideas among scientists, engineers, technicians, and facility staff from around the world. The ISSE 2026 Organizing Committee extends its sincere appreciation to the organizations whose partnership has helped create opportunities for technical exchange, professional development, and the continued advancement of sample environment technologies. We gratefully acknowledge their support.

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