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# New L2SI dynamic reaction microscope endstation in TMO: control system design, installation and integration

*Tuesday 23 September 2025 16:00 (1h 30m)*

To take advantage of the world's most powerful X-ray beam delivered by the LCLS-II project, the former Atomic, Molecular & Optical Science (AMO) instrument at the SLAC Linac Coherent Light Source (LCLS) user facility has been upgraded to the Time-resolved AMO (TMO) instrument by the L2SI project. The new Dynamic Reaction Microscope (DREAM) endstation, also covered by the L2SI project and located at the second interaction point of the TMO, will offer unique capabilities to support cutting-edge research in the fundamental science of matter and energy. This talk provides an in-depth overview of the control systems for the DREAM endstation, detailing its architecture, design methodology, implementation, and seamless integration with the broader LCLS control infrastructure. It will also address the key challenges, including integrating SmarACT motion control systems with the X-ray Machine Protection System (MPS) across different platforms, developing a robust and flexible equipment protection system, and implementing automated vacuum controls to meet stringent reliability and operational requirements.

## Footnotes

## Funding Agency

**Author:** YIN, Jing (SLAC National Accelerator Laboratory)

**Co-author:** KAMESWARAN, Divya (SLAC National Accelerator Laboratory)

**Presenter:** YIN, Jing (SLAC National Accelerator Laboratory)

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