Contribution ID: **6** Type: **Lightning talk**

EPICS diffractometer control with HKL calculations

Saturday 20 September 2025 16:20 (5 minutes)

An EPICS Input/Output Controller (IOC) for HKL crystallography calculations and diffractometer control is introduced. The IOC brings real-time, bidirectional crystal diffraction computations into seamless beamline control. This IOC, built using PyDevice, bridges efficient C-based core calculations with flexible Python bindings, providing powerful forward and inverse crystallographic transformations (real-space motor rotations to reciprocal-space Miller indices, and vice-versa) across diverse diffractometer geometries—including 4-circle, 6-circle, and kappa setups. The interface is delivered through a Phoebus CSS GUI, enabling users to define lattice constants, compute UB matrices, refine alignment, and perform scan planning in reciprocal space.

https://github.com/hkl-projects/ioc-hkl
https://repo.or.cz/hkl.git
https://github.com/klemenv/PyDevice
https://github.com/ControlSystemStudio/phoebus

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