

Constellation - a flexible DAQ and control system for lab setups & test beams

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The qualification of new detectors in laboratory or test beam environments presents a complex challenge, requiring the stable operation of multiple devices often supported by separate control and data acquisition systems. These setups frequently undergo modifications, such as the inclusion of different reference detectors depending on the facility, adding further complexity. Successfully managing such dynamic configurations demands a robust system capable of controlling data acquisition, monitoring experimental setups, enabling seamless reconfiguration, and integrating new devices with limited effort.

To address the limitations of existing frameworks, a collaborative effort between DESY, DVEI, Lund University, and the University of Hamburg has resulted in the development of Constellation —a flexible and innovative framework tailored to laboratory and test beam environments. Constellation enables efficient setup integration through network discovery, enhances system stability through autonomous operation, and simplifies onboarding with user-friendly documentation and tools.

This talk will introduce the core features of Constellation, share insights from its first successful deployment in a test beam environment, and provide an outlook on future developments and applications.

Type of presentation (in-person/online)

in-person presentation

Type of presentation (I. scientific results or II. project proposal)

I. Presentation on scientific results

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