Contribution ID: **159** Type: **Poster**

The Key4hep Turnkey Software Stack: Beyond Future Higgs Factories

Wednesday, 26 October 2022 11:00 (30 minutes)

The Key4hep project aims to provide a turnkey software solution for the full experiment life-cycle, based on established community tools. Several future collider communities (CEPC, CLIC, EIC, FCC, and ILC) have joined to develop and adapt their workflows to use the common data model EDM4hep and common framework. Besides sharing of existing experiment workflows, one focus of the Key4hep project is the development and integration of new experiment independent software libraries. Ongoing collaborations with projects such as ACTS, CLUE, PandoraPFA and the OpenDataDector show the potential of Key4hep as an experiment-independent testbed and development platform. In this talk, we present the challenges of an experiment-independent framework along with the lessons learned from discussions of interested communities (such as LUXE) and recent adopters of Key4hep in order to discuss how Key4hep could be of interest to the wider HEP community while staying true to its goal of supporting future collider designs studies.

Significance

The Key4hep software project has recently seen expressions of interests and contributions from outside the initial project stakeholders (EIC, Muon Collider, LUXE and the Open Data Detector). While previous presentations have focused on the progress with regard to the declared goals of the project, this presentation will focus on the potential and challenges of the use of Key4hep for other experiments and as a common software ecosystem for the wider HEP community.

References

- ACAT 2021 (poster): https://indico.cern.ch/event/855454/contributions/4604989/
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- Key4hep Status and Plans at CHEP 2021 https://www.epj-conferences.org/articles/epjconf/abs/2021/05/epjconf_chep2021_03025/ep
- Podio/EDM4hep at CHEP 2021 https://www.epj-conferences.org/articles/epjconf/abs/2021/05/epjconf_chep2021_03026/epjconf_ch
- EPS/HEP Presentation about key4hep: https://indico.desy.de/event/28202/contributions/105603/

Experiment context, if any

FCC, CLIC, ILC, CEPC, EIC, LUXE

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Session Classification: Poster session with coffee break

Track Classification: Track 1: Computing Technology for Physics Research