Contribution ID: **101** Type: **Oral presentation using Zoom**

A common software for future colliders: The Key4hep turnkey software stack

Thursday, 28 October 2021 19:00 (20 minutes)

Software tools are foundational for the development of future collider experiments. Detector optimization and physics performance studies crucially depend on the availability of performant and reliable software libraries. The Key4hep project aims at providing infrastructure, interfaces, and a common stack of easy-to-use software tools for future, or even present, High Energy Physics projects. Key4hep is to a large extent based on software tools that are already very actively used in the community - like ROOT, Geant4 and DD4hep or those that are currently under active development like EDM4hep or ACTS. The Key4hep project is supported by, among others, the HEP Software Foundation, CERN, DESY and the AIDAinnova project and has active developers from all large future collider projects: CEPC, CLIC, FCC, and ILC. In this talk we present an overview of the Key4hep project and describe the adaptation processes of the different future experiments, in particular the consolidation of different fast and full simulation workflows in the Gaudi framework, thereby showing that Key4hep is a viable long term solution as baseline software for high energy experiments that will facilitate the scientific exchange and make similar studies easier and more efficient.

1st preferred time slot for your oral presentation

15:30-17:30 JST (8:30-10:30 CEST, 2:30-4:30 EDT, 23:30-1:30 PDT)

2nd preferred time slot for your oral presentation

10:00-12:00 JST (3:00-5:00 CEST, 21:00-23:00 EDT, 18:00-20:00 PDT)

Primary authors: SAILER, Andre (CERN); HEGNER, Benedikt (CERN); HELSENS, Clement (CERN); WENXING, Fang; GAEDE, Frank; GANIS, Gerardo (CERN); TENG, Li (Shandong University); TAO, Lin (IHEP); FERNANDEZ DECLARA, Placido (CERN); MADLENER, Thomas (Deutsches Elektronen-Synchrotron (DE)); Dr VOLKL, Valentin (CERN); HUANG, Xingtao (Shandong University); XIAOMEI, Zhang; JIAHENG, Zou

Presenter: FERNANDEZ DECLARA, Placido (CERN)

Session Classification: A-1: Software / Computing

Track Classification: Parallel sessions: Detectors: Session A: Software / Computing