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Towards a Turnkey Software Stack for HEP Experiments

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Future HEP experiments require detailed simulation and advanced reconstruction algorithms to explore the physics reach of their proposed machines and to design, optimise, and study the detector geometry and performance. To synergise the development of the CLIC and FCC software efforts, the CERN EP R&D road map proposes the creation of a “Turnkey Software Stack”, which is foreseen to provide all the necessary ingredients, from simulation to analysis, for future experiments, beyond CLIC, or FCC to proposed Super-tau-charm factories, CEPC or ILC. The software stack will facilitate writing specific software for experiments ensuring coherency and maximizing re-use of established packages to benefit from existing solutions and community developments, for example, ROOT, Geant4, DD4hep, Gaudi and PODIO. As a showcase for the software stack, the existing CLIC reconstruction software, written for iLCSofT, is being to be ported to Gaudi. In parallel, the back-end of the LCIO event data model can be replaced by an implementation in PODIO. These changes will enable the sharing of the algorithms with other users of the software stack.

We will present the current status and plans of the turnkey software stack, with a focus of the adaptation of the CLIC reconstruction chain to Gaudi and PODIO, and detail the plans for future developments to generalize their applicability to FCC and beyond.

Consider for promotion

No

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