



Contribution ID: 174

Type: poster presentation

## ATLAS Tracking Detector Upgrade studies using the fast simulation engine (FATRAS)

The successful physics program of Run-1 of the LHC with the discovery of the higgs boson in 2012 has put a strong emphasis on design studies for future upgrades of the existing LHC detectors and for future accelerators. Ideas how to cope with instantaneous luminosities way beyond the current specifications of the LHC in future tracking detectors are emerging and need sufficiently accurate Monte Carlo simulation techniques to be evaluated. In ATLAS, testing alternative layouts through the full simulation and reconstruction chain is a work-intensive program, which is probably not worth following to full detail for all test layout configurations. We present a novel technique implemented for ATLAS that allows fast definitions of realistic detector layouts in the ATLAS TrackingGeometry library and run the fast simulation program (FATRAS), followed by a fast digitisation and reconstruction chain. The code is also implemented without dependencies on the ATLAS software in the context of the Future Collider Collaboration (FCC) framework.

**Primary authors:** SALZBURGER, Andreas (CERN); CALACE, Noemi (Universite de Geneve (CH))

**Presenter:** SALZBURGER, Andreas (CERN)

**Track Classification:** Track2: Offline software