



Contribution ID: 82

Type: LHC experiments

## A tracking algorithm for the reconstruction of the daughters of long-lived particles in LHCb

*Tuesday, June 5, 2018 4:00 PM (1h 30m)*

The LHCb experiment at CERN operates a high precision and robust tracking system to reach its physics goals, including precise measurements of CP-violation phenomena in the heavy flavour quark sector and searches for New Physics beyond the Standard Model. The track reconstruction procedure is performed by a number of algorithms. One of these, PatLongLivedTracking, is optimised to reconstruct “downstream tracks”, which are tracks originating from decays outside the LHCb vertex detector of long-lived particles, such as  $K_s$  or  $\Lambda^0$ . After an overview of the LHCb tracking system, we provide a detailed description of the LHCb downstream track reconstruction algorithm. Its computational intelligence part is described in details, including the adaptation of the employed Machine Learning algorithms to the environment of the real-time high level trigger. The downstream tracking performance, obtained using a simulated data samples, is also presented.

**Primary author:** MUELLER, Katharina (Universitaet Zuerich (CH))

**Presenter:** MUELLER, Katharina (Universitaet Zuerich (CH))

**Session Classification:** Posters session