Contribution ID: **23** Type: **not specified**

V0-Finding at a Future Higgs Factory

The next big particle collider project is foreseen to be an e+e- Higgs factory. Various detector concepts with advanced detector technologies have been proposed for such colliders, aiming to probe the Standard Model to unprecedented precision. In order to optimise the physics performance of these detectors, sophisticated reconstruction algorithms are being developed and benchmarked on detailed simulations.

One such algorithm is the identification of in-flight decays of neutral particles, so called V0s, in the sensitive volume of gaseous trackers, which offer continuous tracking and thus significant advantages in pattern recognition with respect to a silicon tracker.
A winter student joining our Software&Analysis team will assess the performance of the current, somewhat basic implementation of the V0-Finder, in a generic calibration case as well as with physics samples. The student will connect the V0-Finder with information from recently developed algorithms like a reconstructed-mass track refit. Based on this assessment, the student will study a possible adaption of the current default V0 reconstruction parameters.

Physics / Computing / Engineering Content of the project : 33% / 67% / 0%
- Computing: Studying advanced reconstruction algorithms in particle detectors, making connections between state-of-the-art detector technologies and reconstruction performance
- Physics: Applying these algorithms to a physics case to show its impact

Field

B1: Particle physics analysis (software-oriented)

DESY Place

Hamburg

DESY Division

FH

DESY Group

FTX

Special Qualifications:

Primary author: EINHAUS, Ulrich (FTX (Fachgruppe SLB))

Co-author: DUDAR, Bohdan (FTX (FTX Fachgruppe SLB))