Contribution ID: **146** Type: **Oral**

Computational tools for multiloop calculations and their application to the Higgs boson production cross section

Monday 18 January 2016 15:45 (25 minutes)

Computing the Higgs boson production cross section to N^3LO precision is a highly challenging task which demands for automatization to a high degree. This talk will cover two Mathematica packages that were written in that context but can also be applied to other processes: MT and TopoID. The package MT is capable of computing convolution integrals that enter the infrared counterterms to partonic cross sections. The package TopoID is capable to analyze a given process and generate computer algebra code to perform large parts of its calculation, namely the reduction of the amplitude to scalar master integrals.

Author: Dr HOFF, Jens (Deutsches Elektronen-Synchrotron (DESY))

Presenter: Dr HOFF, Jens (Deutsches Elektronen-Synchrotron (DESY))

Session Classification: Track 3

Track Classification: Computations in Theoretical Physics: Techniques and Methods