

Study of hh production in the WWbb channel at the FCC-hh

Wednesday 13 April 2016 15:30 (20 minutes)

With the Higgs boson discovery all particles expected from the Standard Model of Particle Physics have been found. From now on the main target of the field is to look for signatures of new physics.

The Higgs field potential sector is up to now unexplored and predicts the presence of a self-interaction coupling among Higgs bosons.

Being almost unconstrained from the present precision observables, it is one of the best place to look for beyond standard model contribution.

The Higgs self-coupling measurement is extremely challenging: even the High Luminosity - LHC could be not enough to produce a good estimate of its magnitude.

It is therefore the main duty of future projects, like FCC, to determine their potentiality to its measurement.

The Higgs self-coupling can be extracted from the double Higgs production cross section measurement.

The two Higgs bosons can decay in a multitude of final states, in this study we show the sensitivity to the Higgs self-coupling measurement that can be reached at a future pp collider at 100 TeV, using the $hh \rightarrow W(-\rightarrow \ln) W(-\rightarrow jj) + b \bar{b}$ decay channel.

Efficient b-jets tagging and good jets and Missing Transverse Energy (MET) resolution are crucial ingredients to discriminate the signal from the main background from top pair production. In this study we will show the effect of different detector parameters affecting jet and MET reconstruction at different pile-up conditions, providing a preliminary detector optimization.

Primary authors: DI MICCO, Biagio (Univesita' di Roma 3); TESTA, Marianna (Istituto Nazionale Fisica Nucleare Frascati (IT))

Presenter: TESTA, Marianna (Istituto Nazionale Fisica Nucleare Frascati (IT))

Session Classification: FCC-hh Experiments and Detectors, 3rd session

Track Classification: Experiments and Detectors