Contribution ID: **844** Type: **Parallel session talk**

Higgs Self-coupling Strategy at Linear e+e- Colliders

Saturday 20 July 2024 11:19 (17 minutes)

Measuring the Higgs self-coupling is a key target for future colliders, in particular through di-Higgs production at e+e- Linear Colliders with $\sqrt{s} \geq 500$GeV, e.g. at ILC, C3 or CLIC. This contribution will discuss the roles and the interplay of di-Higgs production processes at various collider energies, including the case of non-SM values of the self-coupling. Previous studies, already based on Geant4-based detector simulation, established that the Higgs self-coupling can be extracted with 10-27% precision and provided a solid understanding of the limiting factors. This provides a robust starting point to explore the potential of more modern and sophisticated reconstruction and analysis techniques. We review the impact of advanced, often machine-learning-based algorithms, including e.g. jet clustering, kinematic fitting and matrix element-inferred likelihoods on the reconstruction of ZHH events, and offer an outlook on what can be expected for the self-coupling measurement.

Alternate track

I read the instructions above

Yes

Primary authors: BLIEWERT, Bryan; VERNIERI, Caterina (SLAC National Accelerator Laboratory (US)); NTOUNIS, Dimitris (SLAC National Accelerator Laboratory (US)); LIST, Jenny (Deutsches Elektronen-Synchrotron (DE)); TORNDAL, Julie Munch (Deutsches Elektronen-Synchrotron (DE))

Presenter: LIST, Jenny (Deutsches Elektronen-Synchrotron (DE))

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