Contribution ID: **31** Type: **ORAL**

Search for Invisible Decays of the Higgs Boson at the ILC Using key4HEP

Wednesday, 11 October 2023 16:00 (16 minutes)

Technologically mature accelerator and detector design and a well-understood physics program make the ILC a realistic option for the realization of a future Higgs factory. Energy staged data collection, employment of beam polarization, and capability to reach a TeV center-of-mass energy, enable unique sensitivity to New Physics deviations from the Standard Model predictions in the Higgs sector and beyond.
This presentation discusses the ILC potential to measure the branching ratio for Higgs boson decays to a final state which is invisible to detectors, $H \to ZZ^* \to \nu\bar{\nu}\nu\bar{\nu}$. Using key4hep the underlying project is set up in a modular way and thus could be used, for example, to compare different collider detectors. Technical aspects as well as the first preliminary results will be presented.

Primary author: HENSEL, Carsten (Centro Brasileiro de Pesquisas Físicas (CBPF))

Presenter: HENSEL, Carsten (Centro Brasileiro de Pesquisas Físicas (CBPF))

Session Classification: Parallel - WG1-HTE

Track Classification: WG1-HTE - Physics Potential: Higgs, top, and electroweak