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The MC generator Whizard for future collider studies

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Monte Carlo generators are at the core of LHC data analyses and will remain crucial for future lepton colliders offering unprecedented energies and luminosities. With a Higgs factory on the horizon and ongoing studies on the physics potential of a muon collider, the development of the generators must be continuously supported to meet the anticipated experimental precision.

We give a status report on recent advancements in the WHIZARD event generator, an efficient tool for simulating exclusive and inclusive multi-particle processes, and one of the major codes used by the lepton-collider community. Notable new features comprise NLO electroweak automation (incl. Powheg-type matching and extensions to BSM processes and SMEFT studies), loop-induced processes and improvements to the UFO interface. We highlight work in progress and further plans, such as new developments in the context of collinear approximation used in the Equivalent Vector-Boson Approximation and electroweak PDFs.

Secondary track

T09 - Beyond the Standard Model

Authors: Dr BREDT, Pia (University of Siegen); Dr HÖFER, Marius (KIT); Prof. KILIAN, Wolfgang (University of Siegen); KREHER, Nils (University of Siegen); MEKALA, Krzysztof (University of Warsaw / DESY); Dr LÖSCHNER, Maximilian (Deutsches Elektronen-Synchrotron DESY); Prof. OHL, Thorsten (University ofWürzburg); REUTER, Jürgen (DESY Hamburg, Germany); STRIEGL, Tobias (University of Siegen); Prof. ZARNECKI, Aleksander Filip (University of Warsaw)

Presenter: MEKALA, Krzysztof (University of Warsaw / DESY)

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