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Renormalization in the chargino and neutralino sector of the MSSM with complex parameters

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We calculate chargino production at a future linear collider, and heavy Higgs boson decays including full one-loop contributions in the MSSM with complex parameters. To achieve this, we require a comprehensive approach to renormalization in the chargino and neutralino sector, for the case where parameters can be complex. This is non-trivial in the on-shell scheme, as interference with the often-neglected absorptive parts of self-energies can give rise to observable effects. We investigate the size of these effects for the processes studied, and further suggest a general strategy for the renormalization of processes containing external charginos and/or neutralinos.

Primary author: BHARUCHA, Aoife (Hamburg University/DESY)

Presenter: BHARUCHA, Aoife (Hamburg University/DESY)

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