

# Lepton-hadron collisions in MadGraph5\_aMC@NLO

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In the coming years, the Electron-Ion-Collider (EIC) in the United States will enable researchers to study lepton-hadron collisions with unprecedented precision. To consolidate figures of merit of a variety of measurements at the EIC, it is essential to include radiative corrections in simulations of electron-proton and electron-nucleus collisions. For the time being, there do not exist any automated simulation tools for such reactions, including even only next-to-leading order (NLO) radiative corrections.

In this talk, I will present our recent progress in the implementation of photoproduction, where the photon is either coming from an electron or from a proton in an ultra-peripheral collision at the LHC. We perform the calculations at NLO in the fixed-order mode within MadGraph5\_aMC@NLO, a framework for (N)LO computation, intensively used at the LHC.

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**Session Classification:** Student and Postdoc talks