

Next-to-leading order electroweak corrections to $pp \rightarrow W^+ W^- \rightarrow 4 \text{ leptons}$ at the LHC

Wednesday 30 September 2015 14:15 (15 minutes)

Weak boson pair production processes are very sensitive to the gauge structure of the electroweak (EW) Standard Model. In certain regions of phase space EW corrections lead to significant distortions of differential distributions and their omission could easily be misinterpreted as signs of new physics. Providing not only QCD but also EW corrections for weak boson pair production processes in a fully differential form is therefore essential for further experimental precision tests of the SM.

In this talk we present our calculation of the next-to-leading order EW corrections to the process $pp \rightarrow W^+ W^- \rightarrow \nu_\mu \mu + e^- \bar{\nu}_e e$ at the LHC. Off-shell effects of the weak bosons as well as non-resonant contributions are fully included. For two equally important event-selection setups –W-pairs as signal process and as irreducible background to Higgs-physics –we present numerical results and discuss the particular effect of the EW corrections by means of several differential distributions, such as transverse momenta or invariant masses of the final state leptons.

Primary author: SALFELDER, Lukas (University of Tuebingen)

Presenter: SALFELDER, Lukas (University of Tuebingen)

Session Classification: Particle Phenomenology