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## Electroweak corrections to Higgs boson production via weak boson fusion at the future LHeC

*Friday 11 July 2025 08:50 (20 minutes)*

In this talk I will present our recent precision calculation of Higgs boson production via weak boson fusion (WBF) processes at the planned LHeC collider. This is the first calculation including the full electroweak effects for the WBF in electron-proton collisions at the one-loop level. For a center-of-mass energy of 1.98 TeV, the magnitudes of the relative corrections for the total cross sections at next-to-leading (NLO) order are respectively  $\sim 10\%$  and  $\sim 20\%$ , in the two renormalization schemes adopted. The NLO terms play more significant roles in changing the differential distributions of certain observables. I will discuss the phenomenological impact of these corrections in both charged and neutral current WBF processes.

### Secondary track

T06 - Top and Electroweak Physics

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