

Simulation-based inference in the search for CP violation in leptonic WH production

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Beyond the Standard Model (BSM) sources of CP violation are one of the required ingredients for solving the matter-antimatter puzzle. Simulation-based inference methods hold the promise of allowing the estimation of optimal observables or likelihood ratios without requiring approximations (e.g. of the effect of shower and hadronization), ensuring a high sample efficiency through the use of high-dimensional data and simulator information.

In this work, started in arXiv:2308.02882, we focus on leptonic WH production, a difficult channel due to the presence of a (unobservable) neutrino. We explore the use of such methods and benchmark them against kinematic and angular observables commonly used in experimental analyses.

This work aims at informing analysis strategies for Run 3 and beyond, with the ultimate goal of extracting the best sensitivity to BSM physics out of LHC data.

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Authors: FERNANDES DA SILVA, Marta (LIP - Laboratorio de Instrumentação e Física Experimental de Partículas (PT)); BARRUÉ, Ricardo (LIP - Laboratorio de Instrumentacao e Física Experimental de Partículas)

Co-authors: OCHOA, Ines (LIP - Laboratorio de Instrumentação e Física Experimental de Partículas (PT)); CONDE MUINO, Patricia (LIP - Laboratorio de Instrumentação e Física Experimental de Partículas (PT)); SANTOS, Rui (ISEL and CFTC-UL); DAO, Valerio (CERN)

Presenter: BARRUÉ, Ricardo (LIP - Laboratorio de Instrumentacao e Física Experimental de Partículas)

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