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Z'-explorer: confronting Z' models against LHC data

Abstract

Z' boson is a hypothetical mediator that appears in a wide variety of New Physics models, and Z' searches at the LHC have been performed in all SM visible channels, providing limits that must be taken into account non-trivially at the time of constraining each BSM proposal. To ease this task, we present a software, Z'-explorer, to automatically test Z' models against LHC data. By simply providing couplings and decay widths, Z'-explorer allows exploring the parameter space of a given model, determining the most sensitive visible channel for Z' exclusion/detection. We also present a software update, Z'-explorer 2.0, which includes a minimal extension to dark sectors, providing the possibility to explore Z' as an s-channel mediator to fermionic dark matter. This talk is based on 2005.05194 and 2109.13194.

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