

Model Independent Bounds on Left-Right Gauge Boson Masses from LHC Run 2 and Flavour Observables

Friday 19 July 2024 14:30 (17 minutes)

Left-Right Models (LRMs) are one of most relevant extensions of the Standard Model (SM) of particle physics. They introduce a new gauge sector and can restore parity (P) or charge conjugation (C) symmetries at high enough energies. These theories can be embedded in other more fundamental ones with larger gauge groups. Consequently, the restoration of the C or P symmetries can be pushed towards higher energy scales compared to the scale of the Spontaneous Symmetry Breaking (SSB) of the LRM gauge group. We study three LRMs with different specific realizations of the scalar sector without imposing any additional discrete symmetry to the theory. We present bounds on the masses of the new gauge bosons using data from the LHC Run 2 and rare meson decays. We discuss the structure of the right-handed quark mixing matrix and the impact of the neutrino and scalar sectors. Naive collider bounds are alleviated bringing New Physics effects in flavour observables closer to an observable level.

Alternate track

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Session Classification: Beyond the Standard Model

Track Classification: 03. Beyond the Standard Model