



Contribution ID: 50

Type: Talk

Dark Matter and Collider Signals in the Alternative Left-Right Model

Wednesday, 20 December 2023 09:00 (45 minutes)

Left-right symmetric models fill in some of the lacunae in the Standard Model, such as providing an explanation for parity and neutrino masses. But the additional bosons in the theory must be heavy to avoid flavor-changing neutral currents, and the models lack a natural dark matter candidate. The Alternative Left-Right Model, emerging from E6 grand unification, is an attractive variation of the usual Left-Right Symmetric Model because it rectifies both these problems.

We present an analysis of this model, including a large set of theoretical and experimental constraints, with a particular emphasis on dark matter (which can be fermionic or bosonic) and collider signals for exotic quarks and light bosons, in particular the W' .

We also examine flavour-changing decays of the top quark, enhanced in the Alternative Left-Right Model through the presence of exotic quarks, allowing these to be probed indirectly.

Reference publication/preprint

Designation

Faculty

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Session Classification: Plenary