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Strongly-interacting mirror fermions at the LHC

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Summary

The existence of mirror partners (katoptrons) of Standard-Model fermions offers a viable alternative to a fundamental BEH mechanism, with the coupling corresponding to the mirror generation gauge symmetry becoming strong at around 1 TeV. The resulting non-perturbative processes produce dynamical katoptron masses on the order of 0.14 - 1.2 TeV. Moreover, they create mirror mesons with masses ranging approximately from 0.1 to 3 TeV. Since the corresponding phenomenology expected at the LHC is particularly rich, we explore some detection methods of mirror mesons that could lead to a deeper understanding of the underlying mirror fermion structure.

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