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Low-energy signals of strongly-coupled electroweak symmetry-breaking scenarios

Content :

The non-observation of new particles at the LHC suggests the existence of a mass gap above the electroweak scale. This situation is adequately described through a general electroweak effective theory with the established fields and Standard Model symmetries. Its couplings contain all information about the unknown short-distance dynamics which is accessible at low energies. We consider a generic strongly-coupled scenario of electroweak symmetry breaking, with heavy states above the gap, and analyze the imprints that its lightest bosonic excitations leave on the effective Lagrangian couplings. Different quantum numbers of the heavy states imply different patterns of low-energy couplings, with characteristic correlations which could be identified in future data samples. The predictions can be sharpened with mild assumptions about the ultraviolet behaviour of the underlying fundamental theory.

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