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Integrating out resonances in strongly-coupled electroweak scenarios

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Accepting that there is a mass gap above the electroweak scale, electroweak effective theory (EWET) is an appropriate tool to describe this sector, where only the Standard Model fields are taken into account. Since the EWET couplings contain information on the unknown high-energy dynamics, we consider a generic strongly-coupled scenario of electroweak symmetry breaking, where the known particle fields are coupled to heavier states. Then, and by integrating out these heavy fields, we study the tracks of the lightest resonances into the couplings. The determination of the low-energy couplings in terms of resonance parameters can be improved by assuming a short-distance behavior of the underlying theory. Notice that we adopt a generic non-linear realization of the electroweak symmetry breaking with a singlet Higgs.

Summary

Primary author: ROSELL, Ignasi (Universidad CEU Cardenal Herrera & IFIC, Valencia)

Co-authors: PICH, Antonio (University of Valencia); SANTOS, Joaquin (University of Valencia); SANZ-CILLERO, Juan Jose (Universidad Autonoma de Madrid)

Presenter: ROSELL, Ignasi (Universidad CEU Cardenal Herrera & IFIC, Valencia)

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