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Matching BSM physics to the SMEFT and the Weak Hamiltonian with 1-loop accuracy

Tuesday 24 July 2018 15:30 (20 minutes)

A systematic procedure to obtain the 1-loop low-energy effective Lagrangian resulting from integrating out the heavy fields of a given ultraviolet theory is presented in this talk. It is shown that the matching coefficients are determined entirely by the hard region of the functional determinant involving the heavy fields. This represents an important simplification with respect the conventional matching approach, where the full and effective theory contributions have to be computed separately and a cancellation of the infrared divergent parts has to take place. I will discuss how the method can be used to compute the non-SM interactions among SM particles at the electroweak scale from specific BSM setups (such as the MSSM or the 2HDM), but also to derive the constraints imposed by the SMEFT at 1-loop on the coefficients of the low-energy effective theory of quarks and leptons.

Parallel Session

Electroweak, Top and Higgs Physics

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