



Contribution ID: 352

Type: **Parallel Talk**

UV properties of higher dimensional operators in Higgs Effective Field Theories from hidden symmetries

Saturday, July 8, 2017 9:00 AM (20 minutes)

We present a systematic approach to the classification of the UV properties of higher dimensional operators spanned by $\Phi^\dagger\Phi$ and ordinary derivatives thereof (e.g. $\partial_\mu(\Phi^\dagger\Phi)\partial^\mu(\Phi^\dagger\Phi)$, $(\Phi^\dagger\Phi)^3$, $(\Phi^\dagger\Phi)^4$, ...) in Higgs Effective Field Theories. The procedure is purely algebraic and thus regularization-independent. It relies on a novel set of hidden symmetries that can be formulated in an extended field space where the singlet $\Phi^\dagger\Phi$ is treated as a dynamical variable. The resulting relations stemming from such symmetries are valid to all orders in the loop expansion. Several applications to one-loop processes are considered.

Experimental Collaboration

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Session Classification: QFT and string theory

Track Classification: Quantum Field and String Theory