Contribution ID: **42**   Type: **not specified**

Constraints on multi-scalar models

Wednesday 28 January 2026 11:45 (15 minutes)

The Standard Model of Particle Physics is one of the most successful theories ever created. Nevertheless, it fails to account for several phenomena observed in nature, making extensions of the Standard Model necessary.

In this work, we provide a complete description of perturbative unitarity bounds for the gauge-scalar sectors of models with extra $SU(2)$ doublets, neutral singlets, or charged singlet scalars. These models appear frequently in Beyond the Standard Model theories and are particularly common in scenarios addressing Dark Matter. We present a classification together with a minimal set of scattering matrices that capture all the relevant information. We also developed a Mathematica implementation of our results, called **BounDS**.

Field of Research/Work

Particles and Fields

Author: LOPES, Carolina (IST)