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Unveiling BSM Physics: Exploring Multi-scalar Coupling Modifiers

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In this talk, I delve into the potential of multi-scalar interactions within the κ-framework as effective discriminators of BSM physics at current and upcoming colliders. By analysing the existing and projected collider constraints on these coupling modifiers, we can identify deviations from the Standard Model expectations, which serve as signposts for BSM discoveries. Building upon these findings, we can navigate the diverse BSM landscape within the $\kappa_{2V} - \kappa_V$ plane, showcasing carefully chosen examples that highlight the influence of geometry, Higgs-mixing, renormalisability considerations, and their interplay.

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