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Beyond the Standard Model: Charting Fundamental Interactions via Lattice Simulations

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After the discovery of the Higgs boson, the primary objective of the Large Hadron Collider (LHC) experiments is to identify new physics beyond the Standard Model (SM). In fact, both ATLAS and CMS are providing precision tests of the Higgs sector and tantalizing hints of new, unexpected resonances.

One of the most intriguing possibilities would be the discovery of non-perturbative phenomena in electroweak physics. Most strikingly, there is no conclusive evidence yet on whether the Higgs boson is elementary or composite.

Lattice simulations can play a key role in advancing our theoretical understanding of strongly coupled gauge theories relevant for extensions of the SM and the LHC program. In this talk I will review the state of BSM lattice studies aimed to chart the phase diagram and to uncover the properties of such strongly coupled gauge theories.

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