

P5 Town Hall at SLAC



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Stress-testing the Standard Model of Particle Physics using the Effective Field Theory formalism (remote)

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The Standard Model (SM) of Particle Physics, which has reigned supreme for the last 60 years, is being stress-tested at the highest energy scales at the Large Hadron Collider (LHC). While an increasingly large number of processes are being studied with unprecedented precision, rare processes with novel and complex topologies predicted by the SM are being observed at the LHC. The current physics program of the LHC encompasses fourteen orders of magnitude in cross section. Precise theoretical computations exist across this huge range of cross sections enabling a comprehensive exploration of the SM. Deviations from SM predictions could point to the existence of New Physics. The formalism of an Effective Field Theory provides a theoretically consistent way of characterizing the potential nature of NP that uses all possible measurements. In this brief remark, I will talk about how constraints set on certain kinds of theoretically allowed, yet so far unobserved interactions enable us to obtain a glimpse of an underlying theory of NP, providing crucial input for future experiments.

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Session Classification: Contributed Remarks