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Noncommutative Geometry in the LHC-Era

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Noncommutative geometry (NCG) allows to unify the basic building blocks of particle physics, Yang-Mills-Higgs theory and General relativity, into a single geometrical framework. The resulting effective theory constrains the couplings of the Standard Model (SM) and reduces the number of degrees of freedom.

After briefly introducing the basic ideas of NCG, I will present its predictions for the SM and the few known models beyond the SM. Most of these models, including the Standard Model, are now ruled out by LHC data. But interesting extensions of the SM which agree with the presumed Higgs mass and predict new particles are still very much alive and await further experimental data.

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