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NON-SPECIALIST LECTURE: Hyperbolic extra-dimensions in particle physics and beyond

Thursday, 2 July 2015 14:00 (40 minutes)

Abstract content
   (Max 300 words)
Formatting &
Special chars

The nature of space-time at high energy is an open question and the link between extra-dimensional theories with the physics of the Standard Model can not be established in a unique way. The compactification path is not unique and sypersymmetry breaking can be done in different ways. My talk shall try to tackle this problem the other way round starting from what is known from theory and experiment: the Standard Model contains chiral fermions, the dark matter content of the universe and the difference between the electroweak and Planck scale should be explained. Compactifications based on hyperbolic orbifolds gather a large number of properties that are useful for these problems, like a Dirac spectrum chiral zero modes, a mass gap with the Kaluza-Klein modes, discrete residual symmetries for the stability of dark matter, and interesting cosmological constructions.

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