SEMPARIS – Séminaires en région parisienne

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Particle Physics in Paris

Mardi 22 Juin 2021, 16 :00
IHP, Seminar via zoom https ://ijclab.zoom.us/j/94900481972
Domaines : astro-ph—hep-ph—hep-th

Titre : *Self-Organised Localisation*

Orateur : **Matthew Mccullough (CERN and Cambridge U.)**

Résumé : *We describe a new phenomenon in quantum cosmology : self-organised localisation. When the fundamental parameters of a theory are functions of a scalar field subject to large fluctuations during inflation, quantum phase transitions can act as dynamical attractors. As a result, the theory parameters are probabilistically localised around the critical value and the Universe finds itself at the edge of a phase transition. We illustrate how self-organised localisation could account for the observed near-criticality of the Higgs self-coupling, the naturalness of the Higgs mass, or the smallness of the cosmological constant.*