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Charting the Fifth Force Landscape

Wednesday 16 December 2020 16:00 (30 minutes)

In recent years particle physics research has undergone somewhat of a phase transition, looking increasingly towards hidden sectors and the feebly interacting frontier. In this talk I will introduce a new approach to parameterising dark sector forces, underpinned by the Källén-Lehman representation, in which the effects of any general scalar fifth force are captured by a single positive-definite spectral function. Using this language, I will demonstrate how the effects of loop-level forces can be simply obtained, without needing to explicitly perform loop calculations. I will also show how experimental observables can be expressed in completely general terms, facilitating the straightforward extraction of limits to any specific model. Finally, I will discuss how this framework opens the possibility to speculatively probe violations of unitarity, causality or locality within hidden sectors.

Would you be interested in receiving feedback on your talk?

Yes

Will you be pre-recording your talk?

No

Length of talk

15-25 minutes

Are you happy for your talk to be recorded?

Yes

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