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Title: A baryogenesis mechanism for causal fermion systems

Abstract:

Since the Dirac equation predicts an overall matter/antimatter symmetry, where does the observed asymmetry in our Universe come from? This is an important unanswered question that haunts modern cosmology. In particular, can we attempt to solve this problem using tools from global analysis? In this talk a possible answer to these questions will be outlined by introducing a mechanism of baryogenesis originally suggested in the theory of causal fermion systems. Moreover, we will treat the main mathematical concepts underpinning this mechanism as well as some of its features. Finally, recent results which set the stage for quantitative predictions in conformally flat spacetimes will be presented.