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Complex Metastable condensates in Chern-Simons Quantum Gravity

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In the context of string-inspired Chern Simons (CS) gravity, involving axion-like fields interacting with gravitational CS anomalous terms, I discuss the formation of condensates of the latter due to quantum graviton modes of chiral gravitational wave type, that could exist in the primordial universe. The condensates are complex, with their imaginary parts being associated with instabilities that determine the lifetime of the respective vacuum. I will argue that such condensates can lead to linear axion monodromy potentials, which in turn imply the entrance of the Universe into an inflationary phase, the duration of which is determined by the magnitude of the imaginary part of the gravitational CS condensate. I discuss some elementary phenomenology of such cosmologies and show agreement with the data.

Presenter: MAVROMATOS, Nick