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# Wolfram Ratzinger (Mainz), ”Axion fragmentation on the Lattice”

*Friday 26 November 2021 15:30 (30 minutes)*

Recently scenarios in which an initially homogeneous field rolls over an oscillatory potential have been popularized by variations of the relaxion mechanism as well as the kinetic misalignment scenario for ALPs. These systems possess an instability that leads to the kinetic energy in the homogeneous field getting transferred to exponentially enhanced fluctuations. I will present a detailed numerical study of this process and speculate on the interesting possibility that bubbles where the field settels in different minima of the potential might arise. When the fluctuations start to dominate, the energy density becomes inhomogeneous and one therefore expects that GWs are emitted. I will show however that the ALPs contribution to DM necessarily over-closes the universe if a signal detectable by pulsar timing arrays or laser interferometers would be emitted.

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