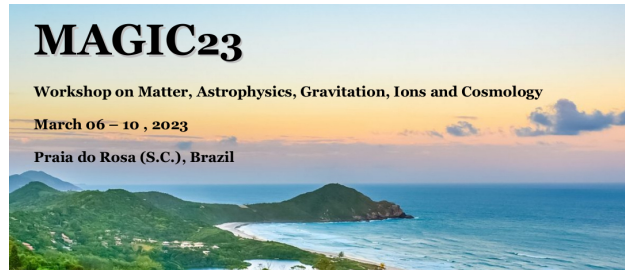


# MAGIC23 Workshop (Matter, Astrophysics, Gravitation, Ions and Cosmology)



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## Effects of a Generalized Uncertainty Principle on the MIT Bag Model Equation of State

The Generalized Uncertainty Principle (GUP) is motivated by the premise that spacetime fluctuations near the Planck scale impose a lower bound on the achievable resolution of distances, leading to a minimum length. Inspired by a semiclassical method that integrates the GUP into the partition function by deforming its phase space, we induce a modification on the thermodynamic quantities of the MIT bag model that we propose serves as an effective semiclassical description of quark matter in a space with minimal length. We investigate the consequences of this deformation on the zero-temperature limit, for which we obtain analytical solutions.

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