Phenomenology 2019 Symposium



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Constraints on Axion Dark Matter from Searches for Radio Signals at Neutron Stars

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Axions, which can solve the Strong CP problem, and axion-like particles (ALPs), which arise naturally in many models of high-scale physics, provide theoretically compelling dark matter candidates. Axions and ALPs which couple to photons have been shown to produce observable radio emission through their conversion to photons in the magnetospheres of neutron stars, providing a means of indirect detection. In this work, we analyze 1 hour of radio data collected by the Effelsberg 100-m Radio Telescope to place novel constraints on \mathbb{E} V axion dark matter. We also briefly discuss implications of dark matter substructure for this search strategy.

Summary

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