

Searching for a dark matter induced galactic axion gradient

Thursday 19 December 2024 12:00 (30 minutes)

An ultra-light axion with CP violating interactions with a dark sector and CP preserving interactions with the visible sector can act as a novel portal between dark matter and the Standard Model. In such theories, dark matter sources an axion field extending over the entire galaxy, the gradient of which can be searched for with precise spin precession experiments. A reinterpretation of existing co-magnetometer data already constrains theories that are consistent with astrophysical bounds, and near-future experiments will begin probing well-motivated models. The required interactions can arise from a confining hidden sector without necessitating fine-tuning of the axion's mass.

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Session Classification: Talks