Contribution ID: **39** Type: **not specified**

Probing axions with X-ray observations of magnetic white dwarfs

Thursday 16 May 2019 09:25 (25 minutes)

Axions are hypothetical particles that couple extremely weakly to regular matter, which makes them challenging to probe in the laboratory. However, axions should be produced in the dense environments of compact stars, providing an additional cooling channel that leads to well-known constraints on the axion's couplings to matter. These constraints are indirect, and although compact stars are predicted to "glow"in axions, this radiation is invisible to us. In this talk I will discuss how the axion radiation is converted into X-ray emission in the strong magnetic field that surround many compact stars, thereby providing a new strategy for probing axions through X-ray observations of magnetic white dwarf stars.

Preferred Session

Dark Matter

Comments

the talk is not on dark matter, but would interest the DM audience

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Session Classification: Dark Matter