

Dark Matter and Stars: Multi-Messenger Probes of Dark Matter and Modified Gravity

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Stars as Axion Laboratories

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It is well-known that light and weakly coupled particles, such as axions, are efficiently produced in hot stellar cores. I will discuss the wide variety of methodologies developed in the community to search for axion emission from stars via their effects on stellar evolution. I will then discuss a related set of work using magnetic stars, in which axion-photon conversion in the magnetosphere can induce a polarization of the thermal emission pointing perpendicular to the direction of the magnetic field. Searches for this polarization result in some of the strongest constraints on the axion to-date.

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