

Search for Axion Stars Using the Global Network of Optical Magnetometers for Exotic Physics (GNOME)

Tuesday 9 August 2022 17:01 (3 minutes)

Since the discovery of dark matter in our universe, numerous possible candidates have been proposed to explain its existence and composition. One of the candidates is the Ultralight axion-like particles, existing in the form of domain walls or axion stars, caused by topology or self-interactions. The Global Network of Optical Magnetometers to search for Exotic Physics (GNOME) looks for a transient signal caused by exotic-spin couplings as the Earth passes through such composite dark matter objects. We describe an analysis method for the GNOME data that is sensitive to axion stars based on the excess power technique.

*Supported by NSF Award PHY-1707803, PHY-2110370, PHY-1707875, PHY-2110388, PHY-2110385.

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Session Classification: Poster Lightning Talks

Track Classification: Posters