

Astrophysical axion searches using neutron stars

Tuesday, 19 September 2023 15:00 (30)

In this talk I will discuss a series of novel ideas and searches being developed to indirectly look for the existence of axions in the magnetospheres of neutron stars. The large magnetic fields and the dilute plasma surrounding neutron stars can dramatically enhance the electromagnetic interactions of axions, giving rise to a variety of signatures in the radio band, including: narrow spectral lines centred about the axion mass, broadband radio emission, short-term and longer-term transient events, and nulling of the pulsar's radio emission. I will highlight the status of current searches, future prospects, and open questions that need to be addressed as we move toward the next generation of radio telescopes.

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