

Exploring the ultralight axion dark matter by the gravitational wave and radio telescopes

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We study the new observational effects of ultralight axion-like particles by the space-borne gravitational wave detector and the radio telescopes. Taking the neutron star-black hole binary as an example, we demonstrate that the phase of gravitational waveform could be obviously modified by the slow depletion of the axion cloud around the black hole formed through the superradiance process. Other effects from dynamical friction with axion dark matter and dipole radiation are also discussed. Finally, we study the detectability of the ultralight axion particles at LISA and TianQin.

Secondary category for the parallel session (optional)

Dark Matter Physics

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