

Can gravitational wave detectors meet the Majoron?

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Optical interferometry used in the gravitational wave detectors is one of the most accurate measuring science. It enables us to detect a tiny deviation of phase velocity of laser light, and we can apply such a technological innovation to the axion detection by measuring the photon's polarization caused by axion dark matter. In this work, we clarify if the gravitational detectors can test a photon's birefringence caused by a new type of Majoron, electromagnetic-anomalous and behaving as dark matter, with current or future missions or not.

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