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KWISP - Latest results on the chameleon hunt at the CAST experiment at CERN

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The KWISP (Kinetic Weakly Interacting Slim Particle) detector is part of the CAST experiment at CERN exploring the dark sector. It utilizes an ultra-sensitive optomechanical force sensor searching for solar chameleons. Chameleons are hypothetical scalar particles postulated as dark energy candidates, which have a direct coupling to matter depending on the local matter density. Considering these characteristics a flux of solar chameleons hitting a solid surface at grazing incidence will, under certain conditions, reflect and exert the equivalent of radiation pressure on the surface. To exploit this trait the KWISP sensor consists of a thin and rigid dielectric membrane placed inside a resonant optical cavity. The detector setup and the latest results will be presented in this talk.

Speaker

Justin Baier on behalf of the CAST collaboration.

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