

## Effects of interactions of axion-like dark matter with SM particles

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An axion is a hypothetical particle being a quant of pseudoscalar field. It has been originally postulated by Peccei and Quinn in 1977 to resolve the strong CP problem in QCD. If axions exist, they are of interest as a possible component of cold dark matter. The axion–photon coupling distorts the electromagnetic field and leads to the inverse Primakoff effect which can be observed with haloscopes. CP-noninvariance of the axion–gluon coupling results in an appearance of oscillating nucleon EDMs which are proportional to the axion field. Axions manifest themselves in direct interactions with particles (so-called axion wind effect). We rigorously determine the relativistic spin dynamics defined by the pseudoscalar field of dark matter axions. We also show that the distortion of the electromagnetic field leads to effective magnetic charges and EDMs of leptons and effective electric charges of magnetic monopoles (the Witten effect). Axion-like dark matter interacts like the axion.

Information on the subject:

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