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## Axion search prospects with the LZ experiment

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Whilst Weakly Interactive Massive Particles (WIMPs) remain the favoured candidates for dark matter, recent LHC results significantly constrain the available parameter space for several models, including supersymmetric neutralinos. Amongst alternative explanations for the astrophysical evidence of dark matter, axions – more specifically the so-called ‘invisible’ axions and axion-like-particles (ALPs) – are well motivated. Stars and the galaxy can be considered as the primary sources, while the most credited models presently are hadronic DFSZ and the GUT KSVZ. Liquid xenon is widely considered to be one of the best target media for detection of WIMPs using nuclear recoils. However these detectors also provide an extremely low radioactivity environment for electron recoils. Thus, very weakly interacting low-mass particles ( $<100 \text{ keV}/c^2$ ), such as the hypothetical axion, could be detected as well in this case using the axio-electric effect. This process is equivalent of a photo-electric effect with the absorption of an axion instead of a photon. We present the LZ potential for these searches, testing the axion coupling to electron ( $g_{Ae}$ ) and setting constraints on the solar axion mass according to the aforementioned models.

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