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## Searching for dark matter using ultra cold neutrons

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The existence of dark matter DM is well established from cosmological observations. While large scale structure formation, rotation curves of galaxies and gravitational lensing all clearly indicate the presence of DM in the Universe, the microscopic particles responsible for these observation still hide from laboratory discovery. A viable class of hypothetical particles which could make up DM are Axions and Axion like particles. Originally the Axion was motivated by the absence of a signal for an electric dipole moment of the neutron (nEDM) ( $dn < 3.0 \times 10^{-26} ecm$  [J.M. Pendlebury et al.,PRD92(2015)092003]) generated by the vacuum polarisation term of quantum chromo dynamics. The same spectrometers using ultra cold neutrons which are used for searching for an nEDM can also be used to search for ultra-light axionic dark matter [C. Abel et al., PRX7(2017)041034].

In this talk I will give an overview of possible DM searches using ultra cold neutrons with a particular focus on our experiments using spin precession.

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