

Search for Axion-Like Dark Matter using Cold Neutrons

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The current best estimate for the universe's matter content consists of 84% dark matter, and the search for its composition remains of great interest. One possible candidate is a so-far undetected ultra-low-mass axion. In this talk, I report on a search for dark matter made of axion-like particles (ALPs) using a Ramsey-type apparatus for cold neutrons. A hypothetical ALP-gluon-coupling would manifest in a neutron electric dipole moment signal oscillating in time. Twenty-four hours of data have been analyzed in a frequency range from 23 Hz to 1 kHz, and no significant oscillating signal has been found. Present dark-matter models allow for constraining the coupling of ALPs to gluons. Details of the analysis and results will be presented.

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