

Dark Interactions 2024

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Searching for dark sectors and X17 with PADME

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PADME is a fixed-target, missing-mass experiment originally designed to search for dark photons using a beam of positrons with energy up to 500 MeV. The detector, located at the Laboratori Nazionali di Frascati, in Italy, has already collected initial physics data over the last few years. More recently, the experiment has been adapted to perform a direct search for on-shell X17 production. PADME will be able to provide independent confirmation of the anomalies observed in the ATOMKI spectroscopic measurements with Beryllium, Helium, and Carbon nuclei. The new experimental setup and the prospects for the observation of X17 production will be discussed, and new upgrades to the detector that will greatly expand the physics program of PADME will be introduced.

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