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Searching for ultralight dark matter with atomic spectroscopy and magnetic resonance

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Axions, axion-like particles (ALPs), dilatons, and other ultralight (masses from 10-4 down to 10-23 eV) particles have been discussed as possible candidates for dark matter. An interesting feature of these ideas is that they lead to predictions of potentially observable transient and oscillating effects. I will describe how we are looking for these as well as the relation of such experiments to tests of fundamental symmetries (P, CP, T, CPT ⋯). For up-to-date information on our various experiments in this area (CASPEr, GNOME, differential atomic-dysprosium clock, etc.), please refer to the web pages [1,2].

[1] https://budker.uni-mainz.de/
[2] http://budker.berkeley.edu/

Author: Prof. BUDKER, DMITRY (Helmholtz Institute Mainz)

Presenter: Prof. BUDKER, DMITRY (Helmholtz Institute Mainz)

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