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Towards the first axion search results of the Any Light Particle Search II experiment

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Any Light Particle Search II (ALPS II) is a dual optical cavity enhanced light-shining-through-a-wall (LSW) experiment at DESY in Hamburg looking for axions and axion-like particles with a target search sensitivity of $g_{a\gamma\gamma}$ down to $2 \times 10^{-11} \text{ GeV}^{-1}$ for masses $m_a \leq 0.1 \text{ meV}$. Two 120 m long strings of superconducting dipole magnets have been set up, each providing a magnetic field-length product of $560 \text{ T} \cdot \text{m}$. A resonant optical cavity with a record-worthy storage time of as high as 6.75 ms has been constructed to encompass one magnet string. During its initial data-taking phase ALPS II will be operated with a simplified optical configuration that facilitates the characterization of the experiment. The first science run will presumably take place in the second quarter of 2023 and delve into uncharted parameter space by few orders of magnitude in comparison to previous LSW experiments. In this talk we will describe the current status of ALPS II, present presumably the first results, and draw the perspectives for further improvements in its search sensitivity.

Submitted on behalf of a Collaboration?

Yes

Author: Dr WEI, Li-Wei (Deutsche Elektronen-Synchrotron (DESY))

Presenter: Dr WEI, Li-Wei (Deutsche Elektronen-Synchrotron (DESY))

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