



Contribution ID: 297

Type: **Oral**

New Limit on Axion-Like Dark Matter using Cold Neutrons

Friday, 21 October 2022 09:30 (20 minutes)

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. Various astronomical observations and laboratory experiments constrain the axion mass and its interaction strength in the allowed phase space. In this talk, we report on a search for dark matter 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 $23 \mu\text{Hz}$ to 1 kHz, and no significant oscillating signal has been found. The usage of present dark-matter models allows constraining the coupling of ALPs to gluons. Details of the analysis and results will be presented.

Primary author: Mr SCHULTHESS, Ivo (Universität Bern)

Presenter: Mr SCHULTHESS, Ivo (Universität Bern)

Session Classification: Session