



Contribution ID: 224

Type: Poster

## The 2s-1s transition in muonic atoms and atomic parity violation

*Tuesday, 18 October 2022 16:06 (1 minute)*

Due to the large overlap between the muon and nuclear wave function, muonic atoms are an exceptionally sensitive system to study short range muon-nuclear/nucleon interactions and probe various nuclear moments. With a physics program focusing on Atomic Parity Violation (APV), the muX collaboration is performing a series of muonic X-ray measurements in medium- and high-Z nuclei, exploiting the coverage and high multiplicity of a germanium detector array and the high-quality negative muon beams at the Paul Scherrer Institute.

Here I will present the first results of a measurement program explores the possibility of observing APV directly in muonic atoms. APV arises from the mixing of the opposite parity 2p and 2s atomic states, leading to parity violation in the 2s-1s transition. We focus on Z=30 nuclei, where a measurable branching ratio of the single photon 2s-1s transition is expected.

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**Session Classification:** BBQ - Drinks & Posters