



Contribution ID: 16

Type: Talk

## **【333】 High-Resolution Spectroscopy of Muonic Lithium - First Steps and Prospects of the QUARTET Experiment**

*Wednesday 11 September 2024 17:30 (15 minutes)*

Accurate measurements of nuclear charge radii are essential for QED tests and benchmarking nuclear structure theory. Muonic atom spectroscopy is a particularly suited tool for measuring the RMS radii of nuclear charge distributions and has successfully provided data for very light and heavier nuclei. However, the energy range ( $\sim 20$ -200 keV) for elements from lithium to neon remains poorly studied, due to technological limitations in conventional spectroscopy methods. Addressing this, the QUARTET collaboration uses cryogenic metallic magnetic calorimeters (MMCs) for high-resolution spectroscopy of light muonic atoms. A pivotal test beam in October 2023 at the Paul Scherrer Institute demonstrated the potential of MMCs, showcasing the first high-resolution spectra of muonic lithium.

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**Session Classification:** Nuclear, Particle- & Astrophysics (TASK)

**Track Classification:** Nuclear, Particle- and Astrophysics (TASK)