



Contribution ID: 50

Type: **Invited Talk**

Precision benchmarks for nuclear and atomic physics from laser spectroscopy of muonic atoms

Monday, 31 July 2023 11:50 (35 minutes)

Laser spectroscopy of muonic atoms, hydrogen-like atoms formed by a negative muon and a nucleus, has recently provided the charge radii of the lightest nuclei (proton, deuteron, ^3He and ^4He) with unprecedented accuracy. In this talk we present laser spectroscopy of these exotic atoms and their contribution to nuclear physics. Emphasis will be given to the new results in ^3He .

Moreover we will emphasise how these measurements are impacting the determination of fundamental constants leading to the best tests of atomic and molecular energy levels for few-body systems such as H, He, H_2^+ and H_2 providing the best verification of Quantum Electrodynamics for bound systems.

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Session Classification: Monday Plenary Session (AudiMax)