



Contribution ID: 57

Type: **Invited**

Spectroscopy of muonic atoms and the proton radius puzzle

Thursday 6 December 2018 17:00 (30 minutes)

We have measured several 2S-2P transitions in muonic hydrogen (μp), muonic deuterium (μd) and muonic helium ions ($\mu^3\text{He}$, $\mu^4\text{He}$). From muonic hydrogen we extracted a proton charge radius 20 times more precise than obtained from electron-proton scattering and hydrogen high-precision laser spectroscopy but at a variance of 7σ from these values. This discrepancy is nowadays referred to as the “proton radius puzzle”.

New insight has been recently provided by the first determination of the deuteron charge radius from laser spectroscopy of μd . The status of the proton charge radius puzzle including the new insights obtained from μD and μHe spectroscopy will be discussed. Moreover, a novel scheme for spectroscopy of high-Z muonic atoms will be briefly presented.

Primary author: Dr ANTOGNINI, Aldo (Paul Scherrer Institute)

Presenter: Dr ANTOGNINI, Aldo (Paul Scherrer Institute)

Session Classification: Other Facilities 2