Contribution ID: **70** Type: **Poster**

Design of the detection system for the measurement of the hyperfine splitting in muonic hydrogen

Tuesday 22 October 2019 17:29 (1 minute)

Muonic hydrogen, ***ground-state hyperfine splitting***, ***detection system***, ***MeV-energy X-rays***, ***scintillation detectors***.

Muonic hydrogen (μp) is a bound-state of a negative muon and a proton. Since a muon is 207 times heavier than an electron, the energy levels of μp are very sensitive to the nuclear structure. By means of laser spectroscopy, we are aiming at the measurement of the ground-state hyperfine splitting to extract the two-photon exchange contribution and the Zemach radius of the proton. This experiment is being conducted at Paul Scherrer Institute and it requires designing a detector system capable of measuring the MeV-energy X-rays produced by the muonic atoms. The variation of thin and thick scintillation detectors can be used to define energy cuts to distinguish between an electron and a high-Z material (μZ) X-ray.

Work is supported by SNF project 200021_165854 and ERC CoG. #725039.

Authors: SINKUNAITE, Laura (Paul Scherrer Institute/ ETH Zürich); ON BEHALF OF CREMA COLLABORATION

Presenter: SINKUNAITE, Laura (Paul Scherrer Institute/ ETH Zürich)

Session Classification: BBQ - Drinks & Posters