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

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Muonic hydrogen 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 muonic hydrogen 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. In this talk we will introduce the simulations and the initial laboratory tests of the detection system. Work supported by SNF project 200021_165854 and ERC CoG. #725039.

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