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An overview of the MUSE experiment at PSI[1] ISHARA FERNANDO, Hampton University, MUSE COLLABORATION[2] — The MUon Scattering Experiment (MUSE) at the Paul Scherrer Institute (PSI) has been primarily motivated to investigate the proton charge radius in order to address the discrepancy between two candidate values from hydrogen spectroscopy, muonic-hydrogen spectroscopy and electron-proton scattering experiments. MUSE was proposed as the first experiment ever to perform simultaneous high-precision measurements of elastic electron-proton and muon-proton scattering. Measurements will be obtained for both positive and negative lepton charges. The beam is a mixture of electrons (e), muons (μ) and pions (π) of chosen charge, run at momenta of 115, 160, 210 MeV/c. MUSE is equipped with a target system which consists of liquid hydrogen (LH2), Carbon and Polyethylene (CH_2) targets. MUSE measures scattered particles at scattering angles of $20^\circ - 100^\circ$ corresponding to transferred momenta of $0.002 - 0.08$ GeV$^2/c^2$. I will present an overview of the experimental setup including the present status and projected timeline.

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[2]MUon Scattering Experiment (MUSE) Collaboration

Ishara Fernando
Hampton University

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