

Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Overview of the Muon Proton Scattering Experiment (MUSE) at PSI¹ MICHAEL KOHL, Hampton Univ, MUSE COLLABORATION — The proton radius puzzle was established in 2010 when the results of a reduced size of the proton obtained with muonic hydrogen spectroscopy were first released, in contradiction with previous measurements based on electron scattering and regular hydrogen spectroscopy. More recently, several new measurements with various techniques seem to prefer a smaller radius, yet without ruling out the older data. The primary motivation of the Muon proton Scattering Experiment (MUSE), which is presently carried out at the Paul Scherrer Institute (PSI), is to measure the proton charge radius with muons, and to specifically test lepton universality and two-photon exchange with definitive precision, i.e. whether there is any difference between muon and electron elastic scattering, or between scattering of leptons with opposite charges from the proton. The motivation, present status and timeline for completion of MUSE will be reviewed.

¹This work has been supported in part by NSF PHY-1812402 and HRD-1649909

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Date submitted: 10 Jan 2020

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