

Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

e-p scattering measurement of proton radius with gas jet target
@ MAMI¹ YIMIN WANG, Massachusetts Institute of Technology MIT — The proton radius puzzle is the incompatibility of the previously agreed proton charge radius measured by electron-proton scattering and hydrogen spectroscopy, against a smaller number from muonic hydrogen spectroscopy. This topic has been under extensive study since the last decade. New experiments and re-analysis of existing data are published continuously, but the puzzle remains unsolved. In late 2019, the PRad experiment measured the radius compatible with results from muonic hydrogen spectroscopy. It also reported a discrepancy of the proton electric form factor from previous scattering experiments in Q^2 range from $0.02(GeV/c)^2$ to $0.06(GeV/c)^2$. I will present the current status of an on-going experiment at Mainz Microtron, which has taken data early in 2020. This experiment uses two circularly movable spectrometers to remeasure the electron-proton scattering cross-section, covering the most controversial Q^2 range, as previously mentioned. It also helps evaluate the performance of a windowless jet gas target, which will be used for the MAGIX experiment in the future.

¹Funded by the DOE Office of Nuclear Physics

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Date submitted: 26 Jun 2020

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