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Status of the "Proton Radius Puzzle" RANDOLF POHL, Johannes Gutenberg University Mainz, CREMA COLLABORATION — The Proton Radius Puzzle [1] is the 5 sigma discrepancy between the proton rms charge radius measured in muonic hydrogen [2] on the one hand, and in regular hydrogen and elastic electron scattering on the other [3]. I will report on several new measurements in muonic and electronic atoms, which have recently started to shed light on the discrepancy. These include measurements in muonic deuterium [4], helium-3 and helium-4, as well as a new measurement in regular hydrogen [5]. In the outlook, I will present ongoing and planned measurements of the CREMA Collaboration targeting the (magnetic) Zemach radius of the proton [6], and the charge radii of other light nuclei. [1] R. Pohl et al., Annu. Rev. Nucl. Part. Sci. 63, 175 (2013) [2] A. Antognini et al., (CREMA Collab.), Science 339, 417 (2013) [3] P. Mohr et al. (CODATA-2014), Rev. Mod. Phys. 88, 035009 (2016) [4] R. Pohl et al., (CREMA Collab.), Science 353, 669 (2016) [5] A. Beyer et al., Science 358, 79 (2017) [6] R. Pohl et al., J. Phys. Soc. Japan Conf. Proc. 18, 011021 (2017)

Randolf Pohl
Johannes Gutenberg University Mainz

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