



GP-PU Seminar

Priv.-Doz. Dr. Patrick Achenbach

Johannes Gutenberg University, Mainz

Time : 17:00-18:30, 1st March (Wed) 2017

Place : Physics Lecture Hall Rm. 301

The proton radius puzzle

After many decades of research into the fundamental building blocks of matter, the size of one of the most important constituents, the proton, is still not understood.

The discrepancy between the proton charge radius extracted from the muonic hydrogen Lamb shift measurement and the best present value obtained from the elastic scattering experiments remains unexplained and represents a burning problem of today's nuclear physics.

The discrepancy was named the proton radius puzzle and created a great excitement in the physics community, because it rigorously tests the theory of quantum electrodynamics and our understanding of the quantum world. Various possible solutions have been offered, ranging from trivial experimental mistakes to those that suggest the need for physics beyond the Standard Model.

Upcoming experiments at the MAMI accelerator in Mainz, Germany, are dedicated to remeasuring the proton charge form-factor at very small momentum transfers in order to provide new insight into the discrepancy.

The seminar is given as a part of the GP-PU special seminar.

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