

“Highest precision atomic physics tests of the Standard Model”

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A great deal of interest has recently arisen in high-precision atomic physics experiments aimed at searching for New Physics beyond the Standard Model. These experiments became feasible due to outstanding achievements in the field of quantum control of matter and light. Getting increasingly precise, the “table-top” atomic physics studies allow one to tackle extremely intriguing questions such as, for example, drift of fundamental constants with time, search for hypothetical fifth force, or verification the basic symmetries of Nature. In the present talk we will review these and some other atomic physics tests of the Standard Model, as well as will discuss their advances and difficulties. Particular attention will be paid to high precision atomic spectroscopy studies, probing the properties of quantum vacuum and even applications of novel tailored states of light.