Department of Physics and Astronomy

Physics & Astronomy Colloquium

Presents

Holger Müller

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Thursday, November 1, 2018
4:10 pm, Webster Room 17

"Measurement of the fine structure constant as test of the standard model"

Measurements of the fine-structure constant are powerful tests of the consistency of theory and experiment in physics. Using the recoil frequency of cesium-133 atoms in a matter-wave interferometer, we recorded a measurement of the fine-structure constant $\alpha = 1/137.035999046(27)$ at 0.20 parts per billion accuracy using multiphoton interactions such as Bragg diffraction and Bloch oscillations. Comparison with Penning trap measurements of the electron gyromagnetic anomaly via the Standard Model of particle physics has implications for dark-sector candidates and electron substructure. We will close with an outlook on future applications of matterwave interferometry.

Please meet our guest speaker and share in refreshments,
3:45-4:10 p.m. in the foyer on floor G above the lecture hall

Host: Dr. Peter Engels