



## Testing the standard model using atom interferometry

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### Abstract

Quantum sensors based on light-pulse atom interferometry enable precise measurement of a variety of physical quantities. They have a huge potential for testing the fundamental laws of modern physics and for the accurate determination of fundamental constants. Among them is the fine structure constant. This constant is ubiquitous in physics and the accurate knowledge of its value is crucial to test some predictions of the Standard Model of particle physics.

In this talk, I will focus on the determination of the fine structure constant from the measurement of the recoil velocity of an atom that absorbs a photon. I will present the most recent results of the Paris experiment and I will conclude my talk by discussing their impact on the test of the Standard Model, which relies on the comparison between experimental and theoretical values of the electron's magnetic moment.