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Constraining the photon mass: from the lab to the atmosphere and beyond

Monday, 8 July 2024 15:30 (30 minutes)

The de Broglie-Proca theory, which endows the photon with a small, but finite rest mass, is the simplest extension of Maxwell's electrodynamics. Over the last hundred years its consequences have been investigated both theoretically and experimentally with ever tighter upper bounds being set. In this talk we discuss recent limits/sensitivities on the photon mass from laboratory-based experiments, as well as using atmospheric phenomena on Earth. We also briefly discuss limits obtained from Doppler-tracking data of the Cassini spacecraft and the potential for tests at astrophysical scales.

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