



Antimatter Quantum Interferometry

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Abstract

Matter-antimatter asymmetry is one of the key ingredients of our Universe, making the very existence of life possible. The prediction of antimatter following the Dirac equation played a decisive role in the construction of a relativistic quantum theory, together with the experimental discovery of several antiparticles. Understanding antimatter properties nowadays is linked to the still open problem of violation of fundamental laws to explain matter-antimatter asymmetry in the first picosecond of Cosmic Time.

In this talk I will present the first demonstration of antimatter particle interference, obtained with positrons; the experiment was performed in the one-particle-at-a-time mode, in analogy with the Merli-Missiroli-Pozzi 1976 work for the electron and is the first step towards the study of Positronium gravitation.