



Contribution ID: 400

Type: **Invited talk in a parallel session**

Finding upper bounds on the Bopp length in Bopp-Podolsky theory

Friday, 12 July 2024 15:00 (25 minutes)

The Bopp-Podolsky theory is a gauge-invariant and Lorentz-invariant theory of electromagnetism that introduces a new hypothetical constant of Nature with the dimension of a length, called the Bopp length. The theory was introduced by Bopp in 1940, and independently by Podolsky in 1942, in order to cure the infinite field energies of point charges. If one sets the Bopp length equal to zero one recovers the standard Maxwell vacuum theory. In this talk I discuss several methods of how to give upper bounds on the Bopp length on the basis of experiments and observations with present or future technologies. It is demonstrated that the strictest bounds are provided by atomic spectroscopy.

Primary author: PERLICK, Volker

Presenter: PERLICK, Volker

Session Classification: Extended theories of electromagnetism and their impact on laboratory experiments and astrophysical observations

Track Classification: Theory and Experiments in Fundamental Physics: Extended theories of electromagnetism and their impact on laboratory experiments and astrophysical observations