Tests of Lorentz Non-Invariance in Electrodynamics

Aditya Gilra
Swapnil Patil

Abstract:

Special relativity underlies all accepted theories of nature at the fundamental level. Therefore, it has been and must be tested with ever-increasing precision to provide a firm basis for its future application. We talk about a modern Michelson-Morley experiment to test Lorentz non-invariance due to spatial anisotropy of speed of light. The experiment is performed by comparing the resonance frequencies of two orthogonal cryogenic optical resonator. Within the Robertson-Mansouri-Sexl framework, we present the limit on isotropy violation parameter.

References:

1. Holger Muller, *et.al*., Phys. Rev. Lett. 91, 020401 (2003).
2. Michael Edmund Tober, *et al.*, Physics Letters A 300 (2002) 33-39.
3. Peter Wolf, *et al.*, Phys. Rev. Lett. 90, 060402 (2003).
4. A. Brillet, and J.L.Hall, Phys. Rev. Lett. 42, 549 (1979).