

Observational Constraints on the possibility that Sterile Neutrinos cause Anti-gravity

The origin of neutrino masses heralds new physics. Some theories that explain small neutrino masses, predict the existence of sterile neutrinos. Observationally, there is no evidence that neutrinos cause attractive gravity. Exploring a new idea, we study constraints posed by data as to what if sterile neutrinos cause repulsive gravity. We use an effective negative gravitational constant ($-G'$) for the sterile neutrinos to constrain the extent of anti-gravity sourced by them. The case of an open universe is explored (in accordance with the positive value of H_0^2), taking into account different combinations of parameters, and collating with observed values from Type Ia Supernovae datasets.

Primary authors: Ms KAMESHWAR, Priyamvada (University of Delhi); Prof. DAS GUPTA, Patrick (University of Delhi); Mr SRIVASTAVA, Varun (IISER Kolkata)

Presenter: Ms KAMESHWAR, Priyamvada (University of Delhi)

Session Classification: DM, DE, GWs, BHs, GRAVITATION, GALAXIES, QCD, LIFE, GRBs, COSMOLOGY, OA, KT