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Poster Session – Submission of Abstract

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Title of the Poster:

Status of the Baksan experiment with a Dual Metallic Ga Target and a ^{51}Cr Neutrino Source

Abstract Text:

The problem of existence and nature of sterile neutrinos of mass about 1 eV has been emphasized in the last few years, because of both announcement of new anomaly results in experiments on observation of neutrino oscillations and some refinement of cosmological data. The combined analysis of the whole set experimental data shows that it is possible to explain the results with two sterile neutrinos of masses $\lesssim 0.5$ eV [1]. Possibly the same physics is responsible for the low result of the calibration experiments of SAGE and GALLEX with artificial neutrino sources. A probable explanation that this low result is overestimation of the cross section for neutrino capture by the two lowest-lying excited states in ^{71}Ge has not been confirmed [2]. The Baksan experiment with a Dual Metallic Ga Target and a ^{51}Cr Neutrino Source has the potential to test neutrino oscillation transitions with mass-squared difference $\Delta m^2 > 0.5$ eV² with the sensitivity to disappearance of electron neutrinos of a few percent [3].

[1] J. Kopp, M. Maltoni and T. Schwetz, Phys. Rev. Lett. 107 (2011) 091801.

[2] D. Frekers, H. Ejiri, H. Akimune et al., Phys. Lett. B 706, 134 (2011)

[3] V. Gavrin, V. Gorbachev, E. Veretenkin, and B. Cleveland, arXiv:1006.2103 [nucl-ex]; K. N. Abazajiana, M. A. Acero, S. K. Agarwalla et al., Light Sterile Neutrinos: A White Paper, arXiv:1204.5379v1 [hep-ph]

Summary:

The contribution presents a summary of the current status of the Baksan experiment with a Dual Metallic Ga Target and a ^{51}Cr Neutrino Source.

artificial neutrino sources, calibration experiments, cross section, Dual Metallic Ga Target Baksan experiment, excited states, Ga anomaly, neutrino oscillations, Q-value, sterile neutrinos, two zone Ga experiment.