

Abstract Submitted
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BEST sterile neutrino search with gallium¹ IN WOOK KIM, Los Alamos National Laboratory, BEST COLLABORATION² — The Baksan Experiment on Sterile Transitions (BEST), based on the Gallium-Germanium neutrino telescope (GGNT) of the SAGE experiment, aims to fully explore the Gallium anomaly. As a short-baseline neutrino oscillation experiment, BEST setup is composed of two concentric zones filled with liquid Ga: the inner spherical zone of 0.66 m radius and the outer cylindrical zone of 1.096 m radius and 2.192 m height. A mono-energetic ⁵¹Cr source with activity of 3.4099 ± 0.008 MCi was placed at the center of the setup. Any deficit in the neutrino capture rates in the two zones, as well as their differences, would directly indicate the existence of neutrino oscillation to a sterile state on a short baseline. The 2-zone target was exposed to the neutrino source 10 independent times from July 5th to Oct. 23rd 2019, and 20 ⁷¹Ge extractions were made from the two Ga targets. The ⁷¹Ge decay rates were measured from July 2019 to March 2020 to count the total production rate of ⁷¹Ge from the neutrino source. In this talk, the experimental details and the status of BEST sterile neutrino experiment will be explained.

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²Baksan Experiment on Sterile Transitions

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