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## Precision measurement of $^{144}\text{Ce}$ - $^{144}\text{Pr}$ beta spectrum with semiconductor spectrometers.

The artificial source of antineutrinos  $^{144}\text{Ce}$ - $^{144}\text{Pr}$  is one of the most promising for the sterile neutrino search experiments. We have produced a semiconductor  $\beta$ -spectrometer with a sensitive region thickness exceeding 9.6 mm that fully absorbs electrons with energy below 3 MeV. It was used for a precise measurement of the  $\beta$ -spectra of  $^{144}\text{Ce}$ - $^{144}\text{Pr}$  ground and excited state transitions. The measured spectral shapes correspond to theoretical expectations. This result was used in simulation of scintillator detector experiments with the Monte-Carlo method within GEANT4 for estimation of the sensitivity to sterile neutrino with  $^{144}\text{Ce}$ - $^{144}\text{Pr}$  antineutrino source and a large scintillation detector. The best sensitivity curves have been obtained for the cylindrical detector geometry for the detector mass of 100 tones. We can estimate that such detector and a source with activity of 100 kCi fully covers the reactor neutrino anomaly at 90% C.L.

### Mini-abstract

Precision measurement of  $^{144}\text{Ce}$ - $^{144}\text{Pr}$   $\beta$ -spectrum for sterile neutrino search experiments.

### Experiment/Collaboration

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