

Thermal model of the Munich-Genoa calorimeter for SOX

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A calorimeter is being designed and constructed to measure the thermal power and thus the activity (antineutrino-generation rate) of a Cerium source for SOX with <1% accuracy. SOX aims at discovering or refuting eV-scale sterile neutrinos by searching for short-baseline oscillations of active-to-sterile neutrinos at Borexino. This talk presents the thermal model of the calorimetric measurement: numerical simulations were used to study the impact of unknown parameters on the heat distribution and propagation inside the setup, to evaluate the performance of the thermal insulation of the device and to determine the response time of the system. Together with calculations of the uncertainties, the thermal model confirms that the design of the calorimeter should provide a 0.5% uncertainty on the power measurement.

Presentation type

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