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Calibration campaign of the Borexino detector for the search of sterile neutrinos with Sox

The SOX experiment aims to investigate possible anomalous oscillatory behavior in neutrinos, including the existence of sterile neutrinos, by exploiting the very low radioactive background of the Borexino detector. A calibration campaign is crucial to achieve a deeper understanding of the energy response and the spatial reconstruction accuracies of the detector. It will be performed with a suite of low-activity radioactive sources which will map the whole active volume, especially nearby the inner vessel. The calibration points at large radii will be extremely important to study the neutron detection efficiency at the border of the active zones. The calibration system, already used in Borexino Phase-I, allows to insert the sources without perturbing the radio-purity of the detector.The calibration campaign will take place in Fall 2017, a few months before the beginning of the SOX experiment. In this poster, we describe in detail both the calibration hardware and the calibration strategy.

Primary author: Dr COLLICA, Laura (INFN Milano)

Co-authors: Dr BRAVO BERGUÑO, David (INFN Milano); Dr CHOI, Koun (University of Hawaii); Mr NIESLONY, Michael (University of Mainz)

Presenter: Dr COLLICA, Laura (INFN Milano)

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