



Contribution ID: 235

Type: Poster

## Borexino Sensitivity Studies towards Detection of Solar Neutrinos from the CNO Fusion Cycle

The Borexino detector, located at the Laboratori Nazionali del Gran Sasso in Italy, is a liquid scintillator detector with a primary goal to measure solar neutrinos. The  $pp$  fusion chain has been measured in Borexino with an outstanding precision through the detection of  $pp$ ,  $pep$ ,  ${}^7\text{Be}$ , and  ${}^8\text{B}$  neutrinos. It is well motivated by standard solar models that around 1 per cent of the solar energy is fueled by the so-called Carbon-Nitrogen-Oxygen (CNO) cycle. A direct measurement of the CNO cycle is difficult due to the high spectral correlation with the background isotope  ${}^{210}\text{Bi}$  and  $pep$  neutrinos. The sensitivity to CNO neutrinos was evaluated through a likelihood-ratio test, based on thousands of pseudo-experiments analyzed with a counting analysis as well as spectral fit. This poster presents the resulting discovery potential of Borexino towards the CNO cycle in the Sun.

### Mini-abstract

Sensitivity Studies towards CNO cycle solar neutrinos with Borexino.

### Experiment/Collaboration

Borexino

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**Session Classification:** Poster session 3