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A successful strategy for the CNO measurement with Borexino: the MultiVariate Fit

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Borexino is an experiment designed and constructed for real-time detection of low energy solar neutrinos. It is installed at the underground Laboratori Nazionali del Gran Sasso (L'Aquila, Italy) and started taking data in May 2007. Today, the detector is characterized by an extreme and unique radiopurity. The Borexino collaboration has recently published the first direct measurement of the CNO (Carbon-Nitrogen-Oxygen) solar neutrinos rate: this measurement is crucial for the precision modeling of solar physics and for astrophysics in general.

In this contribution, I present the event selection criteria and the strategy adopted by the Borexino collaboration for successfully isolating the spectral component of the CNO signal from the residual backgrounds: a multivariate analysis performed by simultaneously fitting the energy and radial distributions of selected events.

Collaboration name

Borexino

Autore principale: RE, Alessandra Carlotta (MI)

Relatore: RE, Alessandra Carlotta (MI)

Classifica Sessioni: Low Energy Neutrinos

Classificazione della track: Neutrino Telescopes and Multimessenger