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Results from Borexino on solar and geo-neutrinos

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The Borexino experiment is running at the “Laboratorio del Gran Sasso” in Italy since 2007. Its technical distinctive feature is the unprecedented ultralow background of the inner scintillating core, which is the basis of the outstanding achievements accumulated by the experiment.

In this talk, after recalling the main features of the detector, the impressive solar data gathered so far by Borexino will be summarized. Altogether, such measurements put Borexino in the unique situation of being the only detector able to perform solar neutrino spectroscopy over the entire solar spectrum; the counterpart of this peculiar status in the oscillation interpretation of the data is the capability of Borexino alone to perform the full validation across the solar energy range of the MSW-LMA paradigm.

The recently released measurement of the time modulation of the detected neutrino signal induced by the Earth’s orbit eccentricity will be also reported.

The talk will be concluded with an account of the Borexino accomplishments in the geo-neutrino field, marked by the detection of the geo-neutrino signal with a significance as high as 5.9 sigma.

Experimental Collaboration

Borexino

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