

Neutrino astrophysics with Borexino: comprehensive study of solar neutrinos

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Recent achievements in experimental neutrino physics allow studying the Sun's deep interior through the high precision spectroscopic measurements of the solar neutrinos. Currently the most sensitive solar neutrino detector Borexino, which takes data in Gran Sasso national laboratories in Italy, is able to separately measure neutrinos produced in various nuclear reactions of the solar proton-proton fusion chain. Recent Borexino results indicate the preference of high over low metallicity solar models - the step forward of extreme importance for solar physics. Borexino's measurements contribute to neutrino physics as well: for the first time single neutrino detector examines simultaneously the MSW-LMA neutrino oscillation paradigm both in the vacuum and the matter dominated regimes. In this talk I overview the major Borexino accomplishments.

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