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Experimental detection of the CNO cycle

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The Borexino has recently reported the first experimental evidence of neutrinos from the CNO cycle. Since this process accounts only for about 1% of the total energy production in the Sun, the associated neutrino flux, is extremely low as compared with the one from the pp-chain, the dominant process of hydrogen burning. This experimental evidence of the CNO neutrinos was obtained using the highly radio-pure liquid scintillator of Borexino. Improvements in the thermal stabilization of the detector over the last five years enabled us to exploit a method to constrain the rate of Bi-210 background. Since the CNO cycle is dominant in the massive starts, this result proves the evidence of the primary mechanism for the stellar conversion of hydrogen into helium in the Universe.

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Session Classification: Why and How the Sun and the Stars Shine: the Borexino Experiment

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