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Searching for solar hep neutrino interactions with Borexino

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Hep neutrinos from the Sun produced in the reaction $^3He + p \rightarrow ^4He + e^+ + {}_e$. According to Standard Solar Model (SSM) these neutrinos have the highest possible energies (E < 18.8 MeV) and the lowest flux (˜ $10^3 cm^{-2} s^{-1}$). In Borexino the study of hep neutrinos is possible through the neutrino-electron elastic scattering and by means of neutral current reaction with carbon $^{12}C(, ')^{12}C^*$. An upper limit on the integral total flux of hep neutrinos of $1.8\ 10^5 cm^{-2} s^{-1}$ has been derived at the 90% C.L.

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