

Update on the *hep* solar neutrino limit from the three-phase SNO dataset

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The spectrum of solar neutrinos from the *pp* chain has been studied in depth by a variety of underground detectors. However, neutrinos from the *hep* reaction (${}^3\text{He} + p^+ \rightarrow {}^4\text{He} + e^+ + \nu_e$) remain unobserved due to the small theoretical branching ratio (2×10^{-7} per *pp* termination). The SNO detector has a unique sensitivity to neutrino energies above the ${}^8\text{B}$ spectrum endpoint (~ 15 MeV) through the *hep* spectrum endpoint (~ 18.8 MeV) due to the charged current interaction on deuterium, which allows a more precise extraction of the underlying neutrino energy spectrum. The SNO collaboration previously published a world-leading limit in 2006 only using the first heavy water phase with 306.4 days of data. An updated status report on the analysis of the *hep* neutrino spectrum from all three phases of SNO (1170.2 days) will be presented in this poster.

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