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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 ($^3\mathrm{He} + p^+ \rightarrow {}^4\mathrm{He} + e^+ + \nu_e$) 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}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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