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Latest Results from SNO: The Low Energy Threshold Analysis

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The SNO Collaboration has reanalyzed the data from the first two phases of the experiment – the pure heavy water and salt phases – in order to extend the acceptance of neutral- and charged-currents, and elastic scattering events down to an observed kinetic energy of 3.5 MeV.
The combined nature of the analysis, with the reassessment of the systematic uncertainties and backgrounds, has resulted in an improved determination of the neutral-current flux of ^{8}B solar neutrinos which is now measured with an accuracy of approximately 4\%.
In the context of the solar standard model and neutrino oscillation theories, the newest SNO results are of great importance in understanding the energy production in the Sun and the interaction of neutrinos with matter.
A new extraction method was developed to measure the absolute ^{8}B flux scale and a set of analytic parameters describing the survival probability directly as a function of neutrino energy.
The neutrino oscillation parameters were obtained from this new compact set of SNO-only observables, where the model survival probabilities were calculated in the context of matter-enhanced oscillations with the additional effect of θ_{13}.
A collection of results from solar and reactor experiments, combined with the SNO data, resulted in a global estimation of the neutrino mixing parameters with the interesting hint that θ_{13} might be different from zero.

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