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Creating Unbinned, Nonparametric PDFs using the Kernel Estimation Method[1] STANLEY SEIBERT, University of Texas, SUDBURY NEUTRINO OBSERVATORY COLLABORATION — Data from the first two operational phases of the Sudbury Neutrino Observatory are currently being reanalyzed at an energy threshold of 3.5 MeV. Both integral ^{8}B neutrino fluxes and differential fluxes as a function of energy will be obtained through a joint maximum likelihood fit of both data sets. Overall uncertainties will be reduced through increased event statistics, as well as the inclusion of systematics which are correlated between the two phases as free parameters in the fit. Floating systematic parameters during fitting can present a variety of technical challenges when working with binned PDFs. This talk describes the kernel estimation technique for generating analytic, unbinned, multidimensional PDFs from Monte Carlo event data sets, as it has been applied to the SNO analysis. Several optimizations are presented which make kernel estimation practical for use with large data sets, and the method is compared to traditional binned PDF techniques.

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