Notre Dame Science
Department of Physics

^{8}B BREAKUP, THE LONGSTANDING PUZZLE

Nuclear Seminar

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Michigan State University

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11:00 A.M. NSH 124

The ^{8}B breakup reaction provides an indirect estimate of the ^{7}Be(p, gamma)^{8}B reaction rate. This reaction is important because of its connection to the solar neutrino problem. At low (stellar) energies the ^{7}Be(p, gamma) ^{8}B reaction is dominated by the electric dipole transition (E_1), while the ^{8}B breakup reaction rate has a significant contribution from the quadrupole transition (E_2). To obtain the astrophysical S-factor S_{17}(E) from different ^{8}B breakup experiments we must understand the contribution of E_2 to the measured observables. Previous model calculations could not provide an unambiguous estimate of E_2. In our present work we use XCDCC (eXtended Continuum Discretized Coupled Channel) to explore the impact of the core (^{7}Be) spin, deformation and excitation to ^{8}B breakup.

All interested persons are cordially invited to attend.