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Inference and interpretation of the XENON1T low-energy nuclear recoil search KNUT DUNDAS MORAA, JOSEPH HOWLETT, ZIHAO XU, TIANYU ZHU, Columbia University, XENON COLLABORATION — The XENON1T experiment has recently published results lowering the energy threshold in order to perform a search for nuclear recoils produced by solar ^8B neutrinos using a 0.6 tonne-year exposure. This signal is expected to be an irreducible background for future, higher exposure dark matter searches. The expected discovery power was 20%, and no significant excess was observed after unblinding. The low number of expected signal events, and strong degeneracies between the neutrino flux and the uncertain liquid xenon charge and light yields were treated together to compute the discovery significance and confidence volumes, both for this result alone and in combination with external constraints. With the same external constraints, new upper limits were set on the dark matter-nucleus cross-section for dark matter masses reaching down to $3 \text{ GeV}/c^2$, as well as a model of non-standard neutrino interactions. This talk will present the inference procedure used to produce the final results in this analysis.

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