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Signal and background models for low-energy physics in XENON1T[1] JOSEPH HOWLETT, Columbia University, XENON COLLABORATION — The XENON collaboration has recently published results searching for nuclear recoils produced by solar ^{8}B neutrinos in XENON1T data. In order to achieve meaningful sensitivity, we lower the threshold from 2.6 keV to 1.6 keV, only requiring two scintillation photons and four ionization electrons. This increases the expected signal by an order of magnitude, but requires a number of novel techniques to reduce the consequent increase in backgrounds by two orders of magnitude. This talk will outline these techniques and the production and validation of the signal and background models used to develop them. The approach in this work can be carried forward to next-generation experiments to achieve greater sensitivity to ^{8}B neutrinos and low-mass dark matter.

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