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Electronic Recoils in Xenon Detectors Induced by Solar Neutrinos

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Electronic recoil caused by solar neutrinos in multi-ton xenon detectors is a powerful probe of solar physics, and an important background for direct searches of dark matter and double beta decay. Following our previous work [1], we extend our study of recoil energy up to 150 keV, with an improved relativistic random phase approximation (RRPA) and calculations of bound-to-free transitions induced by high multipole operators. The comparison with other simplified methods including free-electron approximation, plane-wave approximation, and independent particle models, will be discussed.

[1] Jiunn-Wei Chen, Hsin-Chang Chi, C.-P. Liu, and Chih-Pan Wu, Phys. Lett. B **774** (2017) 656.

Collaboration you are representing

TDMC Collaboration

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