

Abstract Submitted
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Low-energy recoils and energy scale in liquid xenon detector for direct dark matter searches¹ LU WANG, DONGMING MEI, Univ of South Dakota, CUBED COLLABORATION — Liquid xenon has been proven to be a great detector medium for the direct search of dark matter. However, in the energy region of below 10 keV, the light yield and charge production are not fully understood due to the convolution of excitation, recombination and quenching. We have already studied a recombination model to explain the physics processes involved in liquid xenon. Work is continued on the average energy expended per electron-ion pair as a function of energy based on the cross sections for different type of scattering processes. In this paper, the results will be discussed in comparison with available experimental data using Birk's Law to understand how scintillation quenching contributes to the non-linear light yield for electron recoils with energy below 10 keV in liquid xenon.

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