

New Inelastic Channels for Sub-GeV Dark Matter Scattering

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As the search for dark matter continues down to lower and lower masses, the kinematics of sub-GeV dark matter scattering require moving beyond the approximation of free-particle scattering. I will describe two inelastic channels relevant for sub-GeV dark matter detection which necessarily involve the condensed matter properties of common detector materials: the Migdal effect in liquid nobles, and plasmon excitation in semiconductors. I will outline the theoretical basis for these processes, discuss the importance of many-body effects in accurately predicting the scattering rates, and speculate on whether these processes have already been observed at numerous experiments.

Secondary track (number)

I read the instructions

Yes

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