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Calculation of Double-Differential Cross Sections of n+^{7}Li Reactions Below 20 MeV

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Abstract: A new reaction model for light nuclei is proposed to analyze the measured data, especially for analysis of the double-differential cross sections of the outgoing particles. Many channels are opened in the n+^{7}Li reaction below E_n<20 MeV. The reaction mechanism is very complex, beside the sequential emissions there are also three-body breakup processes. Because of a strong recoil effect of light nucleus reactions, the energy balance is strictly taken into account. The comparisons of the calculated results with the double-differential measurements indicate that the model calculations are successful for the total outgoing neutrons.

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Key words: light nucleus reactions, double-differential cross sections, discrete levels

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