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Coupled-channels analyses for ^{9,11}Li + ^{208}Pb fusion reactions with multi-neutron transfer couplings

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We discuss the role of two-neutron transfer processes in the fusion reaction of the ^{9,11}Li + ^{208}Pb systems. We first analyze the ^{9}Li + ^{208}Pb reaction by taking into account the coupling to the
^{7}Li + ^{210}Pb channel. To this end, we assume that two neutrons are directly transferred to a single effective channel in ^{210}Pb and solve the coupled-channels equations with \textcolor[rgb]{0.98,0.00,0.00}{the} two channels. By adjusting the coupling strength and the effective Q-value, we successfully reproduce the experimental fusion
cross sections for this system. We then analyze the ^{11}Li + ^{208}Pb reaction in a similar manner, that is, by taking into account three effective channels with
^{11}Li + ^{208}Pb, ^{9}Li + ^{210}Pb, and ^{7}Li + ^{212}Pb
partitions. In order to take into account the halo structure of the ^{11}Li nucleus,
we construct the potential between ^{11}Li and ^{208}Pb with a double folding procedure, while we employ a Wood-Saxon type potential with the global Aky\"uz-Winther parameters for the other channels.
Our calculation indicates that the multiple two-neutron transfer process plays a crucial role in the ^{11}Li + ^{208}Pb fusion reaction at energies around the Coulomb barrier.

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