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Low-energy ^{9}Be + ^{208}Pb scattering, breakup and fusion within a four-body model[1] MAHIR HUSSEIN, Universidade de Sao Paulo, Brazil, PIERRE DESCOUVEMONT, T. DRUET, Université Libre de Bruxelles (ULB), Belgium, L. FELIPE CANTO, Universidade Federal do Rio de Janeiro, Brazil — We investigate the ^{9}Be elastic scattering, breakup and fusion at energies around the Coulomb barrier. The three processes are described simultaneously, with identical conditions of calculations. The ^{9}Be nucleus is defined in an $\alpha + \alpha +$ n three-body model, using the hyperspherical coordinate method. We first analyze spectroscopic properties of ^{9}Be, and show that the model provides a fairly good description of the low-lying states. The scattering with ^{208}Pb is then studied with the Continuum Discretized Coupled Channel (CDCC) method, where the $\alpha + \alpha +$ n continuum is approximated by a discrete number of pseudostates. The use of a three-body model for ^{9}Be improves previous theoretical works, where ^{9}Be is assumed to have a two-body structure (^{9}Be +n or $\alpha +$ ^{5}He), although neither ^{8}Be nor ^{5}He are bound. Optical potentials for the α+^{208}Pb and n+^{208}Pb systems are taken from the literature. Scattering, breakup and fusion cross sections are calculated. In general, a good agreement with experiment is obtained, considering that there is no parameter fitting. We show that continuum effects increase at low energies, and confirm that breakup channels enhance the fusion cross

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