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Towards improved optical potentials for composite particle scattering¹ HELMUT LEEB, WOLFGANG DUNGEL, ROMAN KOGLER, Atominstitut of the Austrian Universities, Vienna University of Technology — Quantitative evaluations of almost all nuclear reaction cross sections depend strongly on the quality of the optical potentials. This is particularly true for nuclear reactions involving composite projectiles or ejectiles, e.g. deuterons, alpha-particles etc. Despite their importance for various applications (embrittlement of materials, nuclear astrophysics) the current status of microscopic approaches is not fully satisfactory with regard to their predictive power. In this contribution we present a study of a microscopic approach to the alpha-nucleus optical potential, which is based on a consistent treatment of the composite nature of the collision partners. In addition, we also consider contributions due to the breakup in the case of loosely bound projectiles.

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