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Microscopic optical potentials for Li isotopes

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The microscopic optical potentials for Li isotopes(A=6,7,8) without free parameter are obtained by folding the microscopic optical potentials of their internal nucleons with density distributions generated from corresponding internal wave functions. An isospin-dependent nucleon microscopic optical potential based on the Skyrme nucleon-nucleon effective interaction is used as the nucleon optical potential. Shell model and cluster model are employed respectively to construct the internal wave functions of Li isotopes(A=6,7,8) and derive their density distributions of internal nucleons. The Li microscopic optical potentials are used to calculate the elastic-scattering angular distributions and reaction cross sections. The results reproduce experimental data well and are comparable to those calculated by phenomenological optical model potentials in many cases.

Abstract Type

Poster

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