



散乱半径法を用いた核反応サイズの研究
Studies of the reaction size with the method of the scattering radius

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We formulate a scattering radius, which will be demonstrated to be a good measure of the spatial size of a general exclusive reaction. The scattering radius is presented in the two-body coupled-channel framework with the partial-wave expansion method.

A microscopic coupled-channel calculation is performed for proton and alpha scattering by ^{12}C , and the scattering radii are evaluated for various exit channels, going to the collective states or the three alpha states. We found that the scattering radii for the inelastic channels with a well developed three alpha structure are strongly enhanced in comparison to the scattering radius for the elastic and collective channels. The incident-energy dependence of the scattering radius will be discussed in connection to the matter radius of ^{12}C excited to a final state.

* The talk will be given in English.

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