Turkish Journal of Physics

Turkish Journal

of

Physics

An Extended Adiabatic Approach for Nuclear Reactions

M. YILMAZ, B. GÖNÜL
Department of Engineering Physics,
University of Gaziantep, 27310, Gaziantep-TURKEY

Abstract: In this letter, an alternative approximation is developed for the treatment of breakup process in nuclear reactions, which presents a way of evaluating non-adiabatic corrections to the adiabatic model three-body wavefunction by introducing a more consistent prescription for the continuum n-p center of mass energy. Although the present formalism goes beyond the quasi-adiabatic approach, due to the use of exact continuum channel energies, its application to deuteron involving reactions at medium energies shows that such an approach can not be used in its present form. A possible reason behind this failure is discussed.

Keywords
Authors

phys@tubitak.gov.tr

Scientific Journals Home Page

Turk. J. Phys., **24**, (2000), 5-12.
Full text: pdf
Other articles published in the same issue: Turk. J. Phys.,vol.24,iss.1.