

# **Treatment of break-up in (d,p) and (p,d) reactions**

R.C.Johnson

Dept of Physics, University of Surrey, Guildford, Surrey GU2 7XH, UK

A.M. Moro

Dept de FAMN, Apartado 1065, Universidad de Sevilla, E-41080 Sevilla, Spain

F.M.Nunes

NSCL, Michigan State University, East Lansing, Michigan 48824, USA and  
Dept of Physics and Astronomy, Michigan State University, East Lansing,  
Michigan 48824-1321, USA

We review various methods of calculating (d,p) and (p,d) transition amplitudes starting from approximate forms of the many-body scattering wavefunction. We emphasize integral expressions whose validity can be tested within the framework of 3-body models and which generalize to the many-body case in a way which makes explicit the link with nuclear structure information (overlap functions, spectroscopic factors, asymptotic normalization factors). In particular, we present calculations which test the validity of CDCC and adiabatic approximations to a 3-body model of transfer reactions.