



Contribution ID: 44

Type: **Talk**

Dynamical limits of nucleon knockout at intermediate energy.

Wednesday, 28 March 2012 16:10 (20 minutes)

In the past 15 years, many new features of nuclear shell structure have been discovered via knockout reactions from exotic nuclei at intermediate energies. Cross sections of such processes are usually analysed using the eikonal and adiabatic approximations and give access to experimental spectroscopic factors. The parallel momentum distributions of the projectile-like residues contain information on the intrinsic angular momentum of the removed nucleon. Nevertheless, the limits of the reaction mechanism have to be well understood for a safe extraction of these quantities.

To further investigate these limits, we performed the one-neutron and one-proton removal from unstable nuclei with large asymmetry $DS=Sn-Sp$. Inclusive cross sections and parallel-momentum distributions were measured for incident ^{14}O and ^{16}C at 53 MeV/nucleon and 75 MeV/nucleon respectively. Strong deviations from standard adiabatic predictions are observed in the case of deeply-bound nucleon removal. The corresponding parallel momentum distributions exhibit a cut-off at high energy and a strong low-energy tail. All these results will be presented and discussed in details.

Primary authors: Dr GADE, Alexandra (NSCL); Dr OBERTELLI, Alexandre (CEA/IRFU/SPhN); Dr BAZIN, Daniel (NSCL); FLAVIGNY, Freddy (CEA/IRFU/SPhN); Dr NALPAS, Laurent (CEA/IRFU/SPhN)

Co-authors: Dr BROWN, Alex (NSCL); Dr RATKIEWICZ, Andrew (NSCL); Dr BONACCORSO, Angela (INFN Pisa); Mrs LOUCHART, Corinne (CEA/IRFU/SPhN); Dr WEISSHAAR, Dirk (NSCL); Dr GRINYER, Geof (NSCL); Prof. TOSTEVIN, Jeffrey (University of Surrey); Dr MCDANIEL, Sean (NSCL); Dr GLASMACHER, Thomas (NSCL); Mr BAUGHER, Travis (NSCL)

Presenter: FLAVIGNY, Freddy (CEA/IRFU/SPhN)

Session Classification: Session 10