Resonant and nonresonant breakup of one neutron-halo nuclei ^{11}Be and ^{19}C from a proton target *

R. Crespo[1,2], E. Cravo[1], A.Deltuva[1], and A.C. Fonseca[1]
[1] *Centro de Física Nuclear, Universidade de Lisboa, Av. Prof. Gama Pinto 2, 1649-003 Lisboa, Portugal and*
[2] *Departamento de Física, Instituto Superior Técnico, Taguspark, Av. Prof. Cavaco Silva, Taguspark, 2780-990 Porto Salvo, Oeiras, Portugal*

The breakup of a halo nuclei from a stable nucleus is a sensitive tool of the reaction framework. In order to study the halo continuum, both resonant and nonresonant contributions should be taken into account. In addition a proper treatment of the few-body dynamics of the three-body problem should be accomplished in case only few degrees of freedom play a role in the reaction mechanism. Most recently, the Faddeev/AGS multiple scattering reaction formalism [1,2,3] has been applied to the study of reactions involving two-body halo nuclei [4,5,6]. These works have shown that a tighter control in the reaction theory is needed and that traditional reaction approaches may not be adequate to interpret and extract accurate and reliable structure information from the data.
Our aim is to use the Faddeev/AGS scattering approach to analyse the experimental data, which unlike other approximate reaction methods provides a numerically exact solution of the underlying effective three-body hamiltonian.
We calculate inclusive breakup angular cross sections and energy spectrum observables for the scattering of one neutron-halo nuclei ^{11}Be and ^{19}C from a proton target at intermediate energies and compare with existing experimental data [7,8] respectively.

[1] L.D. Faddeev, Zh. Eksp. Theor. Fiz. **39**, 1459 (1960) [Sov. Phys. JETP **12**, 1014 (1961)].
[2] E.O. Alt, P. Grassberger, and W. Sandhas, Nucl. Phys. B **2**, 167 (1967).
[3] W. Glöckle, *The Quantum Mechanical Few-Body Problem* (Springer-Verlag, Berlin/Heidelberg, 1983).
[4] A. Deltuva, A.M. Moro, E. Cravo, F.M. Nunes and A.C. Fonseca, Phys. Rev. C **76**, 064602 (2007).
[5] R. Crespo, E. Cravo, A. Deltuva, M. Rodríguez-Gallardo, and A.C. Fonseca, Phys. Rev. C **76**, 014620 (2007).
[6] R. Crespo, A. Deltuva, E. Cravo, M. Rodríguez-Gallardo, and A.C. Fonseca, Phys. Rev. C **77**, 024601 (2008).
[7] A. Shrivastava *et al*, Phys. Lett. B **596**, 54 (2004).
[8] Y. Satou *et al*, Phys. Lett. B **660** 320.

* This work was supported by FCT grants PTDC/FIS/65736/2006 and SFRH/BPD/34628/2007