



Contribution ID: 36

Type: Oral

Spectroscopic factors far from stability

Thursday, 24 May 2012 10:20 (20 minutes)

Nucleon transfer reactions have been for years a powerful tool to investigate the filling of orbitals issued from the nuclear shell model. Even for stable magic nuclei, spectroscopic factors deviate from unity. It is understood as the result of short and long-range correlations. In the case of exotic nuclei, the variation of spectroscopic factors with the difference in separation energy $\Delta S = |S_n - S_p|$ is still an open question, but no strong effect was shown from transfer reaction [1]. However available data are restricted to a limited range in ΔS values. A different picture arises from the one nucleon knock-out performed at higher incident energy where a strong asymmetry is found [2] for the reduction factor of spectroscopic factors versus ΔS . Although not observables, spectroscopic factors may be relevant provided they do not depend on the incident energy and on the reaction mechanism: it is crucial to disentangle structure from reaction mechanism effects.

To investigate that issue, we performed one nucleon transfer and knock-out experiments on the same nucleus ^{14}O corresponding to large positive and negative ΔS values, large enough to significantly test the asymmetry. Results will be shown and compared to previous data obtained for (d,p) transfer and Ar isotopes [1].

[1] J. Lee et al., Phys. Rev. C 83 (2011) 014606

[2] A. Gade et al., Phys. Rev. C 77 (2008) 044306

Primary authors: Dr GILLIBERT, Alain (CEA/IRFU/SPhN); Dr OBERTELLI, Alexandre (CEA/IRFU/SPhN); Dr FLAVIGNY, Freddy (K.U.Leuven); Dr NALPAS, Laurent (CEA/IRFU/SPhN); Dr KEELEY, Nick (NCNR Warsaw)

Co-authors: Mr MATTA, Adrien (IPN Orsay); Mr SPITAEELS, Alexandre (GANIL); Dr SHRIVASTAVA, Aradhana (IPN Orsay); Dr BEAUMEL, Didier (IPN Orsay); Dr POLLACCO, Emmanuel (CEA/IRFU/SPhN); Dr HAMMACHE, Fairouz (IPN Orsay); Dr BURGUNDER, Geoffroy (GANIL); Dr GUILLOT, Jacques (IPN Orsay); Dr GIBELIN, Julien (LPC Caen); Dr REJMUND, Mauricy (GANIL); Dr DE SÉREVILLE, Nicolas (IPN Orsay); Dr RAABE, Riccardo (K.U.Leuven); Dr GIRON, Sandra (IPN Orsay); Mr BOISSINOT, Simon (CEA/IRFU/SPhN); Dr LAPOUX, Valérie (CEA/IRFU/SPhN)

Presenter: Dr GILLIBERT, Alain (CEA/IRFU/SPhN)

Session Classification: Nuclear Structure far from Stability

Track Classification: Nuclear structure far from stability