Contribution ID: **18** Type: **Contributed talk**

Transfer reactions using a 11Be beam at ISOLDE

Wednesday, 24 March 2010 10:30 (30 minutes)

The inversion of states is known to happen both in 11Be and 12Be. This indicates a breaking of the N = 8 magic number in 12Be. The breaking has been studied in several different theoretical approaches. One of them [1] describes 12Be as a three particle cluster of 10Be and two neutrons, in analogy to 11Be, which can be described by a 10Be core with an orbiting neutron. The cluster model describes the bound states in 12Be as single particle excitations of the two neutrons. A low lying 0- state has also been proposed. The state should be a bound state close to the known 1- state. The small difference in excitation energies between the 1- and the 1- could be the reason why the 0- state has not yet been observed.

The bound states in 12Be as well as in 11Be and 10Be have been studied with a transfer reaction using a low energy 11Be beam. A transfer reaction favours single particle excitations and is therefore ideal for a study of the cluster model. Experimentally determined cross sections are compared to optical model calculations in order to determine spectroscopic factors. The experiment was peroformed at the REX-ISOLDE facility at CERN in 2005 and again in october 2009. The experiment in 2005 was performed using two double sided silicon strip detectors for particle detection. Detection of gammas were included in the 2009 experiment through the MINIBALL setup. The MINIBALL consists of 144 germanium segments placed on 8 clusters. Results from the experiment in 2005 will be presented as well as preliminary results from the 2009 experiment.

[1] C. Romero-Redondo et al. Phys Rev C 77 054313

Primary author: Mr JOHANSEN, Jacob (Aarhus University)

Presenter: Mr JOHANSEN, Jacob (Aarhus University)

Session Classification: Nuclear Structure and Reactions

Track Classification: Nuclear Structure and Reactions