Contribution ID: **19** Type: **Oral contribution**

a new measurement of the intruder configuration in 12Be

Tuesday, 5 June 2018 11:18 (18 minutes)

A new 11Be(d,p)12Be transfer reaction experiment was carried out in inverse kinematics at 26.9 MeV/nucleon, with special efforts devoted to the determination of the deuteron target thickness and of the required optical potentials from the present elastic scattering data. In addition, a direct measurement of the cross section for the 02+ state was realized by applying an isomer-tagging technique. The s-wave spectroscopic factors of 0.20(0.04) and 0.41(0.11) were extracted for the 01+ and 02+ states, respectively, in 12Be. Using these spectroscopic factors, together with the previously reported results for the p-wave components, the single-particle component intensities in the bound 0+ states of 12Be were deduced, allowing a direct comparison with the theoretical predictions. It is evidenced that the ground-state configuration of 12Be is dominated by the d-wave intruder, exhibiting a dramatic evolution of the intruding mechanism from 11Be to 12Be, with a persistence of the N = 8 magic number broken.

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Session Classification: Session 6