Contribution ID: **8** Type: **Poster**

Determination of the B(E2) value for the first 2+ state of 142Sm using Coulomb excitation at REX-ISOLDE

Monday 17 December 2012 18:05 (1h 25m)

In order to investigate the effect of shell stabilization of mixed-symmetry states [1] it is intended to identify and study the mixed symmetry states in the N = 80 isotones. A necessary prerequisite for such an endeavor is the measurement of the E2 transition strength of the first 2+ state. A beam of radioactive 142Sm ions with an energy of 2.85 MeV/u was impinging on a 1.4 mg/cm2 48Ti as well as on a 2 mg/cm2 94Mo target. Gamma rays from the decay of Coulomb excited states were measured by the MINIBALL array while the nuclei were identified by a DSSSD. The transition strength of the first 2+ to the 0+ ground state in unstable, neutron deficient 142Sm could preliminarily be determined to 29(3) W.u. The result for the B(E2) value deviates from recent QPM calculations [2, 3] while it is in agreement with state-of-the-art large-scale shell model calculations [4, 5]. This finding provides a benchmark for the foreseen investigation of the effect of shell stabilization of the quadrupole isovector valence shell excitations.

[1] G. Rainovski et al., Phys. Rev. Lett. 96, 122501 (2006)
[2] Ch. Stoyanov, private communication (2012)
[3] N. Lo Iudice, Ch. Stoyanov, D. Tarpanov, Phys. Rev. C 77, 044310 (2008)
[4] D. Bianco et al., Phys. Rev. C 85, 034332 (2012)
[5] N. Lo Iudice, private communication (2012)

Primary authors: BAUER, Christopher (Technische Universitaet Darmstadt (DE)); STEGMANN, Robert (Technische Universitaet Darmstadt (DE))

Co-authors: DAMYANOVA, Antoaneta (Universite de Geneve (CH)); SIEBECK, Burkhard (Universitaet zu Koeln (DE)); RADECK, Desiree (Universitaet zu Koeln); BÖNIG, Esther Sabine; RAINOVSKI, Georgi Ivanov (University of Sofia (BG)); GLADNISHKI, Kalin (University of Sofia (BG)); SCHECK, Marcus (TU Darmstadt); THURAUF, Michael (Technische Universitaet Darmstadt (DE)); DANCHEV, Miroslav (University of Sofia (BG)); Prof. PIETRALLA, Norbert (IKP, Technische Universität Darmstadt); THOELE, Pierre (Universitaet zu Koeln); THOMAS, Tim (Universitaet zu Koeln (DE))

Presenter: STEGMANN, Robert (Technische Universitaet Darmstadt (DE))

Session Classification: Poster session