Abstract Submitted
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Low-Lying Negative-Parity Bands of ^{152}Sm via Deuteron Inelastic Scattering S. CHAGNON-LESSARD, P.E. GARRETT, J.C. BANGAY, L. BIANCO, K.G. LEACH, A.A. PHILLIPS, E.T. RAND, C.E. SVENSSON, U. Guelph, G.C. BALL, TRIUMF, T. FAESTERMANN, R. KRÜCKEN, TU München, R. HERTENBERGER, H.F. WIRTH, LMU München — Nuclei near N=90 and Z=64 have recently been suggested to be 'tetrahedral-magic' [1]. One of the main signatures for tetrahedral symmetry is a vanishing quadrupole moment in low-lying negative-parity bands. This has the consequence that a rotational band possess very weak, or even vanishing, E2 matrix elements. With N=90 and Z=62, ^{152}Sm is a potential candidate for relatively stable tetrahedral symmetry. Complementing studies of ^{156}Dy [2], the structure of ^{152}Sm has been investigated using deuteron inelastic scattering with a 22 MeV polarized deuterium beam at the MP tandem Van de Graaff accelerator of the TU/LMU Munich. The deuterons from the reaction were momentum analyzed using the Q3D spectrometer. Absolute cross sections and analyzing powers have been extracted for levels up to 2 MeV. The low-lying negative-parity bands are observed to be strongly populated, however detailed coupled-channel calculations are required before transition elements can be extracted due to the many possible population pathways. Details of the experiment and analysis will be presented. [1] J. Dudek et al., PRL **88**, 25 (2002). [2] D.J. Hartley et al., Bull. APS **54**, 10 (2009).

Sophie Chagnon-Lessard
Department of Physics, University of Guelph, Canada

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