Abstract Submitted
for the DNP11 Meeting of
The American Physical Society

Collectivity in neutron-rich Mn isotopes S.N. LIDDICK, S. SUCHYTA, N. LARSON, B. ABROMEIT, M. BOLLA, (NSCL/MSU), A. AYRES, A. BEY, C. BINGHAM, L. CARTEGNI, M. MADURGA, M. MILLER, M. RAJABALI, R. GRZYWACZ, S. PAULAUSKAS, S. PADGETT, (UT), H.L. CRAWFORD, (LLBL), I.G. DARBY, (K.U. Leuven), K. RYKACZEWSKI, (ORNL), S. ILYUSHKIN, (Miss S.U.) — The rapid development of collectivity in the N = 40 region as protons are removed from the $f_{7/2}$ single-particle state is suggested by the dramatic drop in energy of the first excited 2^+ state from ^{68}Ni to ^{66}Fe and the increase in B (E2) along the Fe isotopic chain. Recent large-scale shell model calculations which include the $g_{9/2}$ and $d_{5/2}$ single-particle states have attributed the increased collectivity in the Cr and Fe nuclei to the influence of multi- particle neutron excitations across N = 40. While a variety of experiments have focused on even-even nuclei, including Cr and Fe, very little is known about the odd-Z isotopes. To explore the influence of the intruder neutron $g_{9/2}$ and $d_{5/2}$ states, the beta decays of the Cr isotopes into the respective Mn nuclei were studied at the NSCL. Preliminary low-energy level structures for the Mn isotopes will be presented.

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Date submitted: 01 Jul 2011 Electronic form version 1.4