

Abstract Submitted  
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**Two-proton knockout in neutron rich N=40 nuclei** P. ADRICH, A.M. AMTHOR, D. BAZIN, M.D. BOWEN, C.M. CAMPBELL, J.M. COOK, A. GADE, D. GALAVIZ, T. GLASMACHER, S. MCDANIEL, D. MILLER, Y. SHIMBARA, K.P. SIWEK, J.R. TERRY, A. OBERTELI, D. WEISSHAAR, National Superconducting Cyclotron Laboratory at Michigan State University — Two-proton knockout from intermediate energy beams of neutron-rich nuclei impinging on light targets has been shown recently to be a direct reaction capable of producing neutron-rich residues and populating their excited states [1]. In an experiment carried out at the National Superconducting Cyclotron Laboratory at Michigan State University this reaction was used to produce and study in-beam  $\gamma$ -spectroscopy of excited states up to spin  $6^+$  in N $\sim$ 40 isotopes of iron,  $^{64,66,68}\text{Fe}$ . So far, these are the heaviest nuclei produced by means of two-proton knockout. The study was motivated by the recently reported onset of deformation in N $\sim$ 40 Cr and Fe isotopes below  $^{68}\text{Ni}$  [2, 3]. In this contribution, the experimental technique, gamma spectra and inclusive one- and two-proton knockout cross sections will be presented and discussed.

- (1) D. Bazin *et al.*, Phys. Rev. Lett. 91, 012501 (2003)
- (2) M. Hannawald *et al.*, Phys. Rev. Lett. 82, 1391 (1999)
- (3) O. Sorlin *et al.*, Eur. Phys. J. A 16, 55 (2003)

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