

Abstract Submitted  
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**Shell Model Analysis of the  $^{56}\text{Ni}$  Spectrum in the Full  $pf$  Model Space**<sup>1</sup> MIHAI HOROI, Department of Physics, Central Michigan University, Mount Pleasant, Michigan 48859, B. ALEX BROWN, National Superconducting Cyclotron Laboratory, and Department of Physics and Astronomy, Michigan State University, E. Lansing, MI 48824, T. OTSUKA, Department of Physics and Center for Nuclear Study, University of Tokyo, Hongo, Tokyo 113-0033, Japan, M. HONMA, Center for Mathematical Sciences, University of Aizu, Tsuruga, Ikki-machi, Aizu-Wakamatsu, Fukushima 965-8580, Japan, T. MIZUSAKI, Institute of Natural Sciences, Senshu University, Higashimita, Tama, Kawasaki, Kanagawa, 214-8580, Japan — We present a full  $pf$ -shell spectroscopy of the low-lying states of  $^{56}\text{Ni}$  using the GXPF1A interaction.[M. Honma et al., Proceedings of ENAM, 2004] Both, the ground state band and the first deformed band, as well as the transition probabilities compares favorably with the experimental data.[D. Rudolpf et al., Phys. Rev. Lett. **82**, 5763 (1999)] We analyze the significance of the  $np - nh$  contributions to the full model calculations, similar to the analysis done for  $^{28}\text{Si}$  in the  $sd$ -shell some twenty years ago.[Brown and Wildenthal, Ann. Rev. Nucl. Part. Sci. **38**, 29 (1988)]

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