DECAY OUT OF THE DOUBLY-MAGIC SUPERDEFORMED BAND IN THE N = Z NUCLEUS ^{60}Zn[1]

C. E. Svensson[2], D. Rudolph[3], C. Baktash, M. A. Bentley[4], J. A. Cameron[2], M. P. Carpenter[5], M. Devlin[6], J. Eberth[7], S. Flibotte[2], A. Galindo-Uribarri, G. Hackman[5], D. S. Haslip[2], R. V. F. Janssens[5], D. R. LaFosse[6], T. J. Lampman[2], T. Lauritsen[5], I.-Y. Lee[8], F. Lerma[6], C. J. Lister[5], A. O. Macchiavelli[8], J. M. Nieminen[2], S. D. Paul, D. C. Radford, P. Peiter[5], L. L. Riedinger[9], D. G. Sarantites[6], B. Schaly[2], D. Seweryniak[5], O. Thelen[7], H. G. Thomas[7], J. C. Waddington[2], D. Ward[8], W. Weintraub[9], J. N. Wilson[6], C.-H. Yu, A. V. Afanasjev[3], and I. Ragnarsson[3]

The doubly-magic superdeformed band in the N = Z nucleus ^{60}Zn has been identified. Linking transitions connecting this band to the yrast line provide the first spin, parity, and excitation energy measurements for superdeformed states in the A ~ 60 mass region. The stretched E2 character and relatively large B(E2) values and intensities of the observed linking transitions suggest that the decay-out process in this nucleus is non-statistical.

---

[1]Abstract of paper submitted to Phys. Rev. Lett.

[2]McMaster University, Hamilton, Ontario, L8S 4M1, Canada.
[3]Lund University, S-22100 Lund, Sweden.
[4]Staffordshire University, Stoke-on-Trent ST4 2DE, United Kingdom.
[5]Argonne National Laboratory, Argonne, IL 60439.
[6]Washington University, St. Louis, MO 63130.
[7]Universität zu Köln, D-50937 Köln, Germany.
[8]Lawrence Berkeley Laboratory, Berkeley, CA 94720.
[9]University of Tennessee, Knoxville, TN 37996.