

Abstract Submitted
for the SES06 Meeting of
The American Physical Society

Identification of levels in ^{144}Cs E.F. JONES, P.M. GORE, Y.X. LUO, J.H. HAMILTON, A.V. RAMAYYA, J.K. HWANG, H.L. CROWELL, K. LI, C.T. GOODIN, Dept. of Physics, Vanderbilt Univ., Nashville, Tennessee 37235, U.S.A., J.O. RASMUSSEN, Lawrence Berkeley National Laboratory, Berkeley, California 94720, U.S.A., S.J. ZHU, Dept. of Physics, Tsinghua Univ., Beijing, P. R. China — From the analysis of γ - γ - γ coincidence data taken with Gammasphere of the prompt γ rays in the spontaneous fission of ^{252}Cf , a cascade of six transitions, at 108.0, 115.1, 263.8, 404.8, 535.2, and tentatively 679.5 keV, was identified in ^{144}Cs for the first time. The transitions were assigned to a cascade with these energies in ^{144}Cs from their relative intensities and by identifying their coincidences with the known transitions in ^{105}Tc and ^{106}Tc , the 3n and 2n fission partners of ^{144}Cs , and comparing the Tc intensities to the respective Tc yield tables. The energy levels in $^{138,140,142}\text{Cs}$ with $N = 83, 85,$ and $87,$ respectively, just above the spherical closed shell at $N = 82,$ each have first excited states around 10 keV and second excited states between 16 and 65 keV, and no rotational-type bands. These states are associated with single particle states in the spherical region. With $N = 89$ in $^{144}\text{Cs},$ one has crossed the region between $N = 88$ and 90 where there is a rather sudden change from spherical nuclei with $N \leq 88$ to significant deformation in $N \geq 90$ nuclei. The levels in ^{144}Cs look like a rotational band in a more well-deformed nucleus.

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Date submitted: 08 Sep 2006

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