

Abstract Submitted
for the DNP06 Meeting of
The American Physical Society

Identification of high spin states in $^{137,138}\text{Cs}$ nuclei K. LI, Y.X. LUO, J.K. HWANG, A.V. RAMAYYA, J.H. HAMILTON, H.L. CROWELL, C. GOODIN, Vanderbilt Univ., J.O. RASMUSSEN, I.Y. LEE, S.C. WU, LBNL, G.M. TER-AKOPIAN, A.V. DANIEL, JINR(Dubna), J.D. COLE, INL, A. COVELLO, A. GARGANO, Univ. di Napoli Fed. II, R. DONANGELO, Univ. Fed. do Rio de Janeiro, W.C. MA, Mississippi State Univ., M.A. STOYER, LLNL, S.J. ZHU, Tsinghua Univ. — High spin states of $^{137,138}\text{Cs}$ have been studied by measuring the $\gamma - \gamma - \gamma$ coincidences from the spontaneous fission of ^{252}Cf with the Gammasphere detector array. The level scheme of the N=83 neutron-rich Cs ($Z=55$) isotope, ^{138}Cs , has been established for the first time up to a 4626keV level assigned (16^+) and that of ^{137}Cs has been expanded up to a 5495keV level assigned ($31/2^-$). Spins, parities and configurations are assigned based on shell model calculations and level systematics. Pronounced differences in low-lying yrast cascade patterns are seen between N=83 isotones ^{138}Cs ($Z=55$), ^{134}Sb ($Z=51$) and ^{136}I ($Z=53$), and between Cs isotopes ^{138}Cs and ^{137}Cs . Significant similarity is observed in the N=82 isotones ^{137}Cs and ^{135}I up to $17/2^+$ but not above the spin nor with ^{133}Sb , which indicates the important role played by interactions between the excitation of the $g_{7/2}$ valence protons outside the $Z=50$ major shell, and the $f_{7/2}$ valence neutron outside the N=82 major shell.

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Date submitted: 22 Jun 2006

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