Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Shape coexistence with strong mixing in ^{152}Sm[1] W.D. KULP, J.L. WOOD, Georgia Tech, P.E. GARRETT, University of Guelph — The transitional nucleus ^{152}Sm has been described as a "soft" nucleus with low-lying β- and γ-vibrational states and with candidate multiple-phonon excitations. However, detailed experimental studies using multiple spectroscopic techniques reveal two extensive families of rotational bands that are remarkably similar. This result suggests that there are coexisting shapes which strongly mix. A prescription of two-state mixing calculations are presented which describe the experimental level energies of the ground-state and first excited (0^+ state) rotational bands, electric monopole transition rates, electric quadrupole matrix elements, and the isomer shift of the first excited 2^+ state.

[1]Work supported in part by USDOE contract DE-FG02-96ER40958 (Ga. Tech).

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Date submitted: 01 Jul 2009 Electronic form version 1.4