

Abstract Submitted
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Multiphonon and Mixed-Symmetry States in ^{127}I SHARMISTHA MUKHOPADHYAY, University of Kentucky — The complex low-lying structure observed in odd-mass nuclei arises from the interplay of phonon, intruder, mixed-symmetry and single particle degrees of freedom. Multiphonon excitations in odd-mass nuclei may occur as a result of weak coupling of an unpaired particle with the core nucleus. Little is known, however about these collective vibrations in odd-mass nuclei. We have studied ^{127}I using the (n, n', γ) and $(n, n', \gamma\gamma)$ reactions at incident neutron energies ranging from 1.2 to 3.0 MeV. From excitation functions and angular distribution, branching and mixing ratios were measured and level lifetimes and transition probabilities determined. To construct and extend ^{127}I decay scheme both excitation functions and coincidence data were used. New information on multiphonon and mixed-symmetry states built on the $5/2^+$ ground state and the $7/2^+[404]$ and $3/2^+[422]$ Nilsson orbitals will be presented.

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