

Abstract Submitted
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Nuclear Excitation via Auger Transitions (NEAT) THOMAS WARD, Techsource Inc., GUY EMERY, Boudoin College, JOHN RASMUSSEN, University of California at Berkeley, HUGON KARWOWSKI, University of North Carolina, CARLOS CASTANEDA, University of California at Davis — Triggering (prompt de-excitation) of isomeric states produced in a process of coupling nuclear excitations to atomic shells via Auger transitions (NEAT) is studied. In this resonant process the nuclear transition energy between the two states must be less than the Auger transition energy. This requires the emitted Auger electron energy and the exact on-resonance nuclear excitation share the Auger transition energy. NEAT is compared to other proposed processes of nuclear excitation produced by x-rays (NEET), by electron capture (NEEC) and bound internal conversion (BIC), all of which suffer from off-resonance nuclear excitation except in those accidental cases where the energies may coincide. Estimates of the total resonance strength will be given for the case of ^{182m}Hf which has been extensively studied theoretically. A second case, ^{189}Os , where NEAT processes may contribute to the nuclear resonance fluorescence (NRF) of the ground state to the 5.8hr isomeric state will also be examined as a good case for experimental verification of the NEAT process.

Thomas Ward
Techsource Inc.

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