The energy and multiplicity correlation in radiative decay of resonances in ^{151,153}Eu(n, γ) reaction

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We investigate the energy and multiplicity distribution of gamma-rays following neutron capture in stable ^{151,153}Eu isotopes. This investigation is performed using the highly segmented BaF_2 DANCE gamma-ray calorimeter at the Los Alamos Neutron Science Center (LANSCE). For each resonance we measure the gamma-ray energy and multiplicity and measure the variation for different resonances. Furthermore, we simulate the radiative cascade following neutron capture and compare the simulated spectra with the experimental results. This comparison gives us information on the nearly unknown subject of transitions between highly excited states in the compound nucleus.

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