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New Decay Studies of ^{66}Ga SURESH KUMAR, University of Delhi, India and Argonne National Laboratory, I. AHMAD, M.P. CARPENTER, J. CHEN, J.P. GREENE, F.G. KONDEV, S. ZHU, Argonne National Laboratory — High-energy γ rays with energies up to 5.0 MeV are emitted in the radioactive decay of ^{66}Ga ($T_{1/2}$=9.49 h). Thus, this radionuclide appears to be a suitable candidate for energy and efficiency calibrations of high-resolution, γ-ray spectrometers that are employed in studies of very neutron-rich nuclei which have large Q_β values. In addition, accurate emission probabilities of this isotope are of interest to medical imaging applications, owing to the existence of large β^+ decay branches, which need to be characterized with better accuracy. Decay studies of ^{66}Ga were initiated using the γ-ray spectroscopy technique. The source was produced by means of the ^{66}Zn(p,n) reaction at a beam energy of 12 MeV. Singles and $\gamma-\gamma$ coincidences measurements were carried out using a single Ge detector and Gammasphere, respectively. The previously known ^{66}Ga decay scheme was extended and many new γ rays were placed in the daughter nuclide ^{66}Zn.

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Filip Kondev
Argonne National Laboratory

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