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$\gamma-\gamma$ Angular Correlations and g-factor Measurements from Spontaneous Fission of ^{252}Cf with Gammasphere K. LI, C. GOODIN, A.V. RAMAYYA, J.H. HAMILTON, J.K. HWANG, Vanderbilt Univ., A.V. DANIEL, G.M. TER-AKOPIAN, JINR(Dubna), N.J. STONE, Univ. Oxford/Univ. Tenn., J.O. RASMUSSEN, Y.X. LUO, LBNL, S.J. ZHU, Tsinghua Univ. — Measurements of g-factors of excited states have been of interest for decades for the investigation of nuclear structures. The g-factors of excited states in several neutron-rich nuclei have been determined by measuring attenuated γ-ray angular correlations from spontaneous fission of ^{252}Cf with the Gammasphere detector array. A ^{252}Cf fission source was sandwiched between two iron foils (10 mg/cm^2) and placed at the center of Gammasphere. For successive transitions in a cascade with the lifetime of the intermediate state much greater than the stopping time of the fission fragments, it is assumed that the fission fragments are implanted into the iron foils before emitting γ-rays. By measuring the time-integral attenuation coefficients, the mean Larmor precession angle of the intermediate state is obtained, which is proportional to the lifetime and g-factor of the state and the hyperfine field acting on the nucleus. Lifetimes of several states have been measured by using the triple γ coincidence technique. We will present details of this technique and compare our results with previous measurements.

Akunuri Ramayya

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