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A Study on Low Spin States in 154Gd Using (p,p') Reaction

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Located at the stability line, the low lying spin states of the 154Gd nucleus were investigated at the University of Jyväskylä accelerator laboratory in Finland using the 154Gd(p,p'γ) reaction. A proton beam of 12 MeV was used to excite the 154Gd target, with the gamma-rays from the reaction detected with the JUROGAM II array, while the LISA charged-particle spectrometer was used for detection of the inelastically scattered protons. This experiment marked one of the first uses of the LISA spectrometer at Jyväskylä, and enabled the efficient tagging of the proton-emitting reactions, thus helping to distinguish between the (p,p'), and the much more copious (p, xn) channels. By analyzing the peaks obtained from the gamma-gamma, and gamma-gamma-proton, coincidence matrices, a decay scheme has been built using the RadWare software Escl8r. Experimental methods, new transitions, and future steps will be discussed.

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