

LIFETIME MEASUREMENTS OF HIGH-SPIN STATES IN THE ^{94}Ru NUCLEUS USING THE DOPPLER SHIFT ATTENUATION METHOD

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Doppler Shift Attenuation Method (DSAM) analysis of the Doppler broadened lineshapes of γ rays [1] following the decay of highly excited state in the semimagic ($N=50$) nucleus ^{94}Ru . Excited states in ^{94}Ru were populated in the $^{40}\text{Ca}(^{58}\text{Ni},4p)^{94}\text{Ru}^*$ fusion-evaporation reaction at the GANIL accelerator complex and the γ rays were measured by the EXOGAM germanium detector array. The fusion products corresponding to different reactions were selected using the DIAMANT CsI(Tl) charged particle detector system and the Neutron Wall liquid scintillator detector array. Lifetimes of several excited states in the ^{94}Ru nucleus have been measured using LINESHAPE package [2] analysis of the Doppler broadened lineshapes resulting from the emission of γ rays while the residual nuclei were slowing down in the thick ($6\text{mg}/\text{cm}^2$) metallic ^{58}Ni target. The lifetime results have been validated with respect to the previous measurements [3]. Experimental results are compared with large-scale shell model calculations.

REFERENCES

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