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Level Lifetimes in ^{132,134}Xe from Inelastic Neutron Scattering[1]

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The stable isotopes of xenon span a region which exhibits an evolution from spherical to gamma-soft behavior; thus the structure of these nuclei may provide insight into the nature of this transition. Highly enriched (>99.9%) ^{132}Xe and ^{134}Xe gases were converted to solid $^{132}XeF_2$ and $^{134}XeF_2$, which were used as scattering samples for inelastic neutron scattering measurements at the University of Kentucky Accelerator Laboratory. Lifetimes of levels up to 3.5 MeV in excitation energy in ^{132}Xe and ^{134}Xe were determined using the Doppler-shift attenuation method. New transitions and levels have been observed and reduced transition probabilities have also been determined. This new information will be examined in an effort to elucidate the structure of these two transitional nuclei.

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