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Measurements of Short-Lived Fission Isomers SEAN FINCH, MEGHA BHIKE, CALVIN HOWELL, FNU KRISHICHAYAN, WERNER TORNOW, Duke University and TUNL — Fission yields of the short lived isomers ^{134m}Te ($T_{1/2}$ = 162 ns) and ^{136m}Xe ($T_{1/2}$ = 2.95 μs) were measured for ^{235}U and ^{238}U. The isomers were detected by the γ rays associated with the decay of the isomeric states using high-purity germanium detectors. Fission was induced using both monoenergetic γ rays and neutrons. At TUNL's High-Intensity Gamma-ray Source (HIγS), γ rays of 9 and 11 MeV were produced . Monoenergetic 8 MeV neutrons were produced at TUNL's tandem accelerator laboratory. Both beams were pulsed to allow for precise time-gated spectroscopy of both prompt and delayed γ rays following fission. This technique offers a non-destructive probe of special nuclear materials that is sensitive to the isotopic identity of the fissile material.

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