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Search for Triaxial Superdeformed Bands in ${}^{174}W^1$ ANDREW KNOX, University of Massachusetts Lowell — Nuclei at high angular momentum occasionally stabilize in elongated ellipsoidal shapes, and, more rarely, in triaxial superdeformed shapes. Rotation of superdeformed nuclei leads to long sequences of regularly spaced gamma-ray transitions between successive states. Transitions from the sparsely populated superdeformed bands to normal deformed states are extremely weak due to the large difference in their wavefunctions. The approximately regular nature of a superdeformed band and strong intra-band gamma-ray coincidences allows a systematic grid search of coincidence data to identify such bands. A grid search was performed for theoretically predicted triaxial superdeformed bands in ${}^{174}W$ by inspecting three- and four-fold coincidence data. High spin states in ${}^{174}W$ were populated using a 225 MeV 50 Ti beam from the ATLAS accelerator at Argonne National Laboratory incident on a thin 128 Te target. The gamma-rays were detected using the Gammasphere array.

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