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# Multiple Shape Coexistence in 78Se

*Thursday 10 July 2025 17:00 (20 minutes)*

Through this letter of intent, we propose to investigate the electromagnetic properties of the low-lying states in $^{78}$Se, which is a promising candidate for the observation of multiple shape coexistence. This measurement will be done via a multi-step Coulomb excitation measurement with AGATA in conjunction with the particle detectors SPIDER and DANTE. The primary objective is to measure, with suitable accuracy, the diagonal and transition E2 matrix elements connecting the low-lying states. These matrix elements will be used to determine shape parameters on the basis of a rotational-invariant sum-rule analysis, thereby, providing considerable insight into the underlying collectivity and the inherent triaxial nature of the ground-state, gamma bands, and the other lower-lying excited $0^+$ states. These newly determined shape parameters will shed light on the possible multiple shape coexistence phenomenon in the $^{78}$Se nucleus. Four (4) days of beam on target are requested.

**Authors:** SENSHARMA, Nirupama; Dr SICILIANO, Marco (Argonne National Laboratory)

**Presenter:** SENSHARMA, Nirupama

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