

Shape coexistence and isospin symmetry along $N=Z$

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The region of proton-rich nuclei around the $N=Z$ offers a rich testing ground for various nuclear models. Rapid shape changes have been observed between from prolate deformation in ^{76}Kr to an oblate ground state in ^{72}Kr . Based on the comparison with its mirror nucleus ^{70}Se , an oblate shape is expected for ^{70}Kr . Breaking of isospin symmetry as well as the proximity to the proton drip line however, may lead to measurable differences in the excitation energy spectrum as well as the quadrupole collectivity of the $A=70$ mirror pair ^{70}Kr and ^{70}Se . ^{70}Kr has been studied at the RIBF facility using Coulomb excitation and neutron removal reactions using the BigRIPS fragment separators to select $^{70-72}\text{Kr}$ beams. Reaction products were identified in the ZeroDegree spectrometers, while emitted gamma-rays were detected in the DALI2 array. Detailed spectroscopic information on ^{70}Kr and measurements of the $B(E2)$ value will be presented and discussed in comparison to the mirror nucleus ^{70}Se and theoretical calculations. These results give important insights in the evolution of shape coexistence and isospin symmetry across the $N=Z$ line.

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