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## Isospin Properties and Pair Correlations in $^{88}\text{Ru}$

*Friday, 23 August 2024 13:30 (25 minutes)*

The character of nuclear superfluidity and the isospin modes of nucleonic pair correlations is a longstanding problem of large interest in nuclear structure physics.

In recent years, intermediate-angular momentum states in heavy  $N\sim Z$  nuclei such as  $^{88}\text{Ru}$  are becoming accessible with advances in instrumentation, most notably the new generation of  $\gamma$ -ray tracking arrays.

The low-lying energy spectrum of the self-conjugate nucleus  $^{88}\text{Ru}$  has been measured using the Advanced Gamma Tracking Array (AGATA) spectrometer in conjunction with the NEDA and Neutron Wall neutron detector arrays, and the DIAMANT charged particle detector array.

The observed  $\gamma$ -ray cascade extends the previously established sequence of low-lying excited states as a rotational-like band structure which exhibits a band crossing at a rotational frequency notably exceeding conventional theoretical projections involving isovector pairing. The departure from standard theoretical predictions is further accentuated when compared with recent experimental observations in the neighboring odd-mass nuclides. In these systems the opposite trend in rotational alignments, i.e. a decrease in alignment frequency and interaction strength between the low-lying yrast band and the aligned structure is found when approaching the  $N=Z$  line.

These seemingly conflicting experimental observations will be discussed in relation to state-of-the-art theoretical model predictions.

### Funding Agency

### Email Address

bc@kth.se

### Presenter if not the submitter of this abstract

**Primary author:** CEDERWALL, Bo (KTH Royal Institute of Technology)

**Co-author:** COLLABORATION, AGATA

**Presenter:** CEDERWALL, Bo (KTH Royal Institute of Technology)

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