

## Single-particle states and collective modes: results from magnetic moment measurement of $^{75}\text{mCu}$

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The atomic nuclei have dual features, the single-particle shell nature and collective modes, which are competing with each other to express the actual nuclear structure. Here we demonstrate the precision analysis of this competition by focusing on the magnetic moment of an isomeric state of a neutron-rich nucleus  $^{75}\text{Cu}$ , where an intriguing shell evolution has been reported.

The experimental magnetic moment measurement was carried out at RIBF, taking advantage of a spin-aligned RI beam obtained in a two-step projectile fragmentation scheme. The  $^{75}\text{Cu}$  beam with spin alignment reaching 30% was produced by one-proton removal from a secondary beam of  $^{76}\text{Zn}$ . The magnetic moment was determined by means of TDPAD method.

In this presentation, the production of spin alignment in the two-step fragmentation scheme will be introduced and the experimental results will be presented. Discussion on the above competition at the neutron-rich  $\text{Cu}$  isotopes, analyzed with the Monte-Carlo shell model calculation, will also be given.

### Summary

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