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## Proton emission from $^{54m}\text{Ni}$ and mirror symmetry (breaking) with $^{54m}\text{Fe}$

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An experiment on 4D-imaging of drip-line radioactivity near doubly-magic  $^{56}\text{Ni}$  was conducted at GANIL. Pictured with the ACTAR TPC, proton-emission branches from the 6457-keV,  $10^+$  isomer in  $^{54m}\text{Ni}$  were established 1. These feature unusually high angular momentum,  $l=5$  and  $l=7$ , respectively, which requires a dedicated theoretical treatment 2.

The completed proton-emission pattern of  $^{54m}\text{Ni}$  also allows for refined studies of isospin-symmetry breaking by looking at its previously measured E2 and E4 gamma-decay paths [3]. By means of a comparison with their well-known ‘mirror transitions’ in  $^{54m}\text{Fe}$ , and aided by a variety of shell-model calculations in the fp model space, effective charges for E4 transitions near  $N=Z$   $^{56}\text{Ni}$  could be estimated. Mirror-energy differences were explored with various shell-model interactions and isospin-symmetry breaking terms [4].

1 J. Giovinazzo, T. Roger, B. Blank, D. Rudolph, B.A. Brown, et al., *Nature Commun.* 12, 4805 (2021).

2 B.A. Brown, priv. comm.

[3] D. Rudolph, R. Hoischen, M. Hellström, et al., *Phys. Rev. C* 78, 021301(R) (2008).

[4] D. Rudolph, B. Blank, J. Giovinazzo, T. Roger, et al., submitted to *Phys. Lett. B*.

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