

# Single-neutron states and the role of the $\nu g_{9/2}$ orbital in $^{71}\text{Zn}$

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The (high-spin) structure of  $^{71}\text{Zn}$  has been investigated at ATLAS by means of the transfer reaction between heavy ions  $^{48}\text{Ca}+^{70}\text{Zn}$  at 25% above the Coulomb barrier, using GRETINA and CHICO-2. In conjunction with Gammasphere data from a similar reaction with a  $^{70}\text{Zn}$  beam on a thick  $^{197}\text{Au}$  target, a level scheme associated with the 3.96 h,  $9/2^+$  isomer in  $^{71}\text{Zn}$  was delineated with the aim to achieve a better understanding of the nature of the neutron excitations close to  $N = 40$ . The level sequences built on the  $g_{9/2}$  neutron orbital all appear to be of single-particle character. The results will be presented and compared with shell-model calculations using modern effective interactions. Comparisons between the results obtained with the transfer and deep inelastic reactions will also be discussed. Moreover, the present experiment allowed to investigate, for the first time, the feasibility of transfer reactions between heavy ions using GRETINA and it can serve as a benchmark for future experiments.

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