

## Spectroscopy of nuclei at the $N \sim Z$ line at GANIL

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Nuclei in the vicinity of the  $N \sim Z$  line form a unique laboratory for studying many different phenomena among which the interplay of  $T=0$  and  $1$  states at low energy, the role of neutron–proton pairing correlations, the shape coexistence along the  $N=Z$  line, the role of isospin symmetry and to which extent it is violated. A special emphasis is put on the heaviest  $N=Z$  nuclei located to the doubly magic  $N=Z=50$ ,  $^{100}\text{Sn}$  nucleus, a key element in the Segré chart to adjust the interaction used in shell-model calculations as well as to delineate precisely the proton dripline. In addition, and connected to this latter point, these nuclei lie along the explosive  $rp$ -process nuclear synthesis pathway and, hence, their low-lying structure may be of interest in determining reaction rates.

For these numerous motivations, nuclei lying at or close to the  $N=Z$  line have been extensively studied at GANIL and in particular in the last months using a complex experimental setup consisting of the AGATA tracking array, the NEDA neutron detector and the DIAMANT charged particle detector. This powerful coupling of efficient detectors, made it possible to address several of the key questions mentioned above. This experimental campaign, as well as earlier results obtained along the  $N=Z$  line, will be presented and some of the main topics which, have been addressed, will be reviewed in a more detailed way.

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