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Investigation of shell evolution in the vicinity of ^{78}Ni by beta-decay spectroscopy

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The objective of my thesis is to study the one particle orbitals when getting closer to the ^{78}Ni .
Are the $N=50$ and $Z=28$ gaps stay big enough to ensure the magicity of ^{78}Ni ?

Concretely, it's about studying nuclei in the isotonic chains $N=49$ and $N=51$, $^{79,81}\text{Zn}$ fed by beta and beta-n decay of $^{79,81}\text{Cu}$ and ^{80}Cu . The low energy states in daughter nuclei will help to reconstruct the 1 particle / 1 hole neutron state positions and to study the evolution toward to ^{78}Ni .

How to study these nuclei? The experiment I'm analysing in my thesis has been done in 2012 at RIKEN, Tokyo, during the EURICA campaign. The objective of this campaign was to establish the low energy spectrum of the nuclei around the ^{78}Ni , so in the $N=50$ and $Z=28$ region. The setup included 12 EURICA clusters for gamma detection and a stack of 8 DSSSD detectors composing WASABI used for particle detection.

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