MICROSECOND ISOMERS BEYOND ^{68}Ni

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Excited states in the nuclei around Z=28 and N=40 have been studied. These neutron-rich nuclei have been produced in the fragmentation reaction of a ^{86}Kr beam at 60.3 MeV/nucl. The decays of isomers populated in the fragmentation are detected at the final focus of the spectrometer in event-by-event microsecond correlation with identified recoils, see [13]. Several new isomers, like ^{78m}Ga, ^{74m}Cu, ^{68m}Co, ^{70m}Co, ^{62m}Mn, ^{60m}V with half-lives of about 300 ns have been discovered including the very exotic ^{78m}Zn. A puzzling result of the performed experiment, the non-observation of expected $I^{\pi}=8^{+}$ isomers in ^{72}Ni and ^{74}Ni nuclei is also reported.

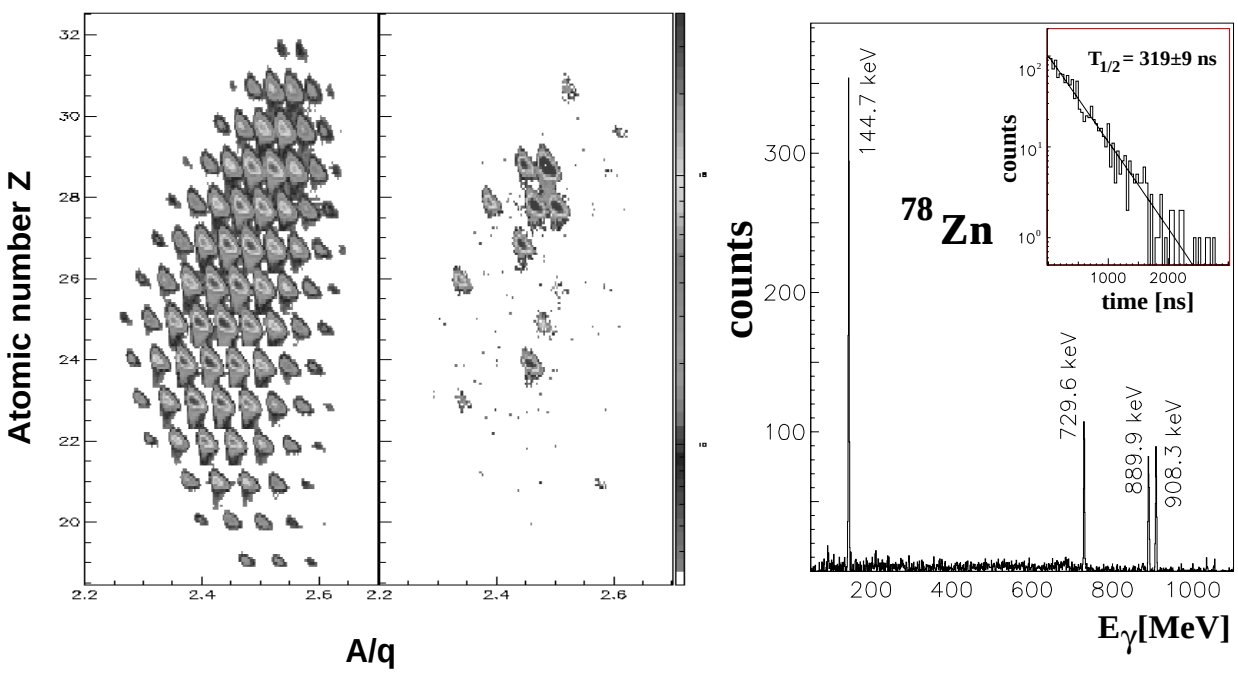

Figure 1: The heavy ion identification plot showing the isotopes (left panel) and most abundant microsecond isomers (right panel) produced in fragmentation of ^{86}Kr beam. Decay γ and time spectrum (inset) of the isomer observed in ^{78}Zn is shown.

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