Observation of New Modes of Multi-Body Decays of ^{252}Cf(sf)

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In our previous publications [1-4], we discussed various manifestations of the decay channel of low excited heavy nuclei, called collinear cluster tri-partition (CCT). New modes of ternary and likely quaternary decays of ^{252}Cf(sf) were observed using the "double-hit" approach. The experiments were performed at the COMETA, a double-armed, mosaic, time-of-flight spectrometer of fission fragments [5]. Digital images of all the detector signals were obtained using multichannel fast flash-digitizer. Off-line processing of the recorded data allowed us to select the decay events where two fragments were detected in the same PIN diode during the time-selection gate of 200 ns. For the selected events, the prescission configuration of the mother nucleus seems to be a channel consisting of different magic nuclei.

References

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