Double-hit experimental approach in studies of the multibody decays of heavy nuclei

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In our previous publications [1–3], a very specific effect, unknown in the past, was discussed, namely a break-up of the fission fragment while it passes through a solid-state foil. The fraction of the fragments which undergo the break-up is supposed to be born in the shape isomer states. The bulk of the results were obtained in the frame of the so-called missing mass experimental method when only one of two partners of the break-up is detected by the spectrometer. The difference between the total mass of the detected fragments and the mass of the mother system serves a sign of at least ternary decay. Alternative, so called" double-hit" approach lets obtain more direct information about the process. By definition, the double-hit registration approach means that two fragments were detected in the same PIN diode during one registration gate of 200 ns length. If a minimum time interval between their time stamps is less than 30 ns a pile-up of the signals take place. Restoring original signals from pile-up is discussed.
References

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