

## Fast timing beta-delayed gamma spectroscopy

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Ultra Fast Timing measurements on neutron-rich nuclei have provided key information, which allowed for a clear interpretation of the observed low-energy structure for a number of exotic nuclei. These measurements are complementary to direct in-beam lifetime measurements, Coulomb excitations, hyperfine interactions and beta-, gamma- or beta-delayed neutron spectroscopy.

The experimental setup includes a few detectors positioned in close geometry around the implantation point, where the mass-separated beam is continuously deposited creating a saturated source. Time-delayed information is provided by the  $\beta^-$  (START) and fast  $\gamma$ -detectors (LaBr<sub>3</sub>(Ce) scintillator - STOP). In addition, a few Ge detectors are present. Triple coincidence  $\beta\gamma\gamma(t)$  events are collected using the signals from the  $\beta$ -Ge-Ge and  $\beta$ -Ge-LaBr<sub>3</sub> detectors. The first data set allows to verify or construct the decay scheme; the second is analyzed separately and allows for level lifetime measurements in the low picoseconds to nanosecond range.

In the presentation, perspectives on analog experiments that might be possible at HIL, will be presented.