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The digital data acquisition system for the implantation-decay station at the Fragment Mass Analyzer[1] DARIUSZ SEWERYNIAK, JOHN T. ANDERSON, MICHAEL P. CARPENTER, HELENA M. DAVID, MICHAEL ALBERS, AKAA AYANGEAKAA, CALEM R. HOFFMAN, ROBERT V.F. JANSSENS, TORBEN LAURITSEN, TIMOTHY MADDEN, MICHAEL OBERLING, PHILIP WILT, SHAOFEI ZHU, Argonne National Laboratory — The implantation-decay station developed for the Argonne Fragment Mass Analyzer (FMA) is an essential tool for studies of exotic nuclei far from the line of stability at ATLAS. It consists of various focal plane detectors, a 160X160 double-sided Si strip detector, a Si "tunnel" detector, and an array of Ge clover detectors. In order to make it sensitive to rapidly-decaying nuclei and in order to increase its count-rate capability it was equipped with a digital data acquisition system which processes waveforms by employing 14-bit, 100-MHz digitizers designed originally for the GRETINA gamma-ray tracking array. However, a new digitizer and trigger firmware was developed to optimize the system for decay spectroscopy and to integrate it with the digital DAQ developed for Gammasphere. Among the first results, short-lived isomers in ^{254}Rf were observed for the first time in two separate experiments with either the FMA or the Berkeley Gas-Filled Separator.

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