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Kmax-based Event Mode Data Acquisition System for the University of Kentucky Accelerator Laboratory

The University of Kentucky Acceleratory Laboratory (UKAL), a facility that possesses unique experimental capabilities for the scattering and detection of monoenergetic fast neutrons, has recently invested in updating its data acquisition capabilities. Starting with a new system for high-precision singles measurements, where subsequent analysis leads to the extraction of lifetimes in the femtosecond region via the Doppler-shift attenuation method, we have developed an event-mode coincidence data acquisition system with capabilities that allow for a new range of experiments to be performed.

The Kmax-based Event Mode Data Acquisition System at UKAL utilizes existing CAMAC modules and crates, as well as the Wiener CC-USB CAMAC controller. Developed with Sparrow Corporation's Kmax 10, utilizing Java 7 and widget-based toolsheets, the system allows for high throughput with low dead times. Currently, the system is capable of supporting 40 ADCs, 32-channels of TDC, 12-channels of scaler values, and 1 Mword of in-crate memory buffering. In this presentation, the commissioning, operation, and performance of the system will be described, and the particular design choices used for the graphical user interface and the logical flow of data acquisition and translation will be discussed.

Summary

This talk describes a recent data acquisition system update for the University of Kentucky Accelerator Laboratory (UKAL). This update allows for a new range of experiments to be performed using monoenergetic fast neutrons at UKAL.

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