

## Development of a digital data acquisition system for neutron metrology

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Neutron fields are found in a variety of industries such as high energy accelerators, and in medical radiation facilities. These fields vary widely with respect to energy, type of radiation and fluence. Neutron energy spectra are typically measured using Bonner sphere detector systems. Systems based on scintillator detectors provide better energy resolution and a number of other advantages. A disadvantage of using scintillator detectors is their sensitivity to all types of radiation, requiring complex analysis of pulses to select for a particular type of radiation. The advent of digital pulse processing electronics has made it more possible to move from being heavily reliant on analogue electronics coupled to a Bonner sphere detector system, to scintillator based systems coupled to compact digital electronics as a standard.

Most neutron metrology groups around the world are thus developing systems of digital pulse processing to replace their aging analogue systems, which are suitable for use in a wide range of contexts and a wide range of detector types. We present progress on the development of a new digital data acquisition system for fast neutron spectroscopy and metrology using advanced scintillator technology, for use in contexts with or without the availability of time of flight.

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