**Event-Based Processing of Neutron Scattering Data**

Peter F. Peterson1, Janik Zikovsky1, Stuart I. Campbell1, Michael A. Reuter1, Russell Taylor2, Nick Draper2

1Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA

2*Tessella plc, Abingdon, Oxfordshire, UK*

Many of the world’s time-of-flight neutron spallation sources are migrating to recording individual neutron events. This provides for new opportunities in data processing, the least of which is to filter the events based on correlating them with logs of sample environment and other ancillary equipment. This paper will describe techniques for processing neutron scattering data in event mode, which preserve event information all the way to a final spectrum, including any necessary corrections or normalizations and how they have been implemented in Mantid[1]. This results in smaller final errors, while significantly reducing processing time and memory requirements in typical experiments. Results with traditional histogramming techniques will be shown for comparison.

**References**

[1] [www.mantidroject.org](http://www.mantidroject.org)

Email corresponding author: petersonpf@ornl.gov Preference: Oral

Key theme: Data Analysis