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C2-"halfplus": Automating Facility Neutron Diffraction Equipment in Preference to Exhausting Staff and Users. Lachlan Cranswick, Ron Donaberger, Ian Swainson, Neutron Program, National Research Council of Canada, Chalk River Laboratories, ON K0J 1J0 CANADA.

Synchrotron and neutron sources are important international facilities for scientists who wish to understand the nature of materials down to the atomic level. However, much facilities equipment can be exhausting to operate; both for beamline scientists and users. This can affect quality of data, timeliness of analysis and publication of conclusions. Implementing increased automation and ease of use can allow concentration on the science of the experiment, instead of long exhausting hours spent nursing diffractometers through to the end of an experimental run.

The C2 multiwire neutron powder diffractometer is located at the NRC Chalk River Laboratories, a two hour drive from Ottawa. While the bulk of C2's ancillary furnace and low temperature equipment is under pre-programmable computer control, this poster will concentrate on the use of a new macro language in its DSCANS control software for automatic alignment of samples by the use of a pre-sample scanning reference-alignment slit. Using the summed total scattering of the sample into the 800 wire detector, samples inside ancillary equipment can be automatically aligned using the neutron beam using a limited rotation of the ancillary stage.