

**W0198**

**High Flux Neutron Diffractometers on Reactor Sources for Real-Time Crystallography.** Alan W. Hewat, Inst. Laue-Langevin, B.P. 156X Grenoble Cedex 9, FRANCE.

New high flux diffractometers on the US Spallation Neutron Source (SNS), such as VULCAN, POWGEN3 and TOPAZ will be world leading, and present a real challenge to machines on the European High Flux Reactor (ILL). In an attempt to compete, ILL will build on its strengths, which include high time-averaged flux on the sample obtained by focusing a wide band of wavelengths from the continuous source. We will emulate the best spallation source machines by using very large angle detectors. This combination of high flux and large detectors was shown at the US Shelter Island workshop to be the key to the most efficient use of existing neutron sources. For example, the quasi-Laue single crystal diffractometers LADI and VIVALDI use  $2\pi$  image-plate detectors on almost white beams, where the continuous intensity from a super-mirror guide can reach  $10^9$  n.cm<sup>-2</sup>.sec<sup>-1</sup>. Our new proposal CYCLOPS will use a 70%  $4\pi$  neutron CCD detector on a focussing super-mirror guide, which will allow real-time exploration of the whole of reciprocal space for the first time. Our new SALSA strain scanner also uses a wide band of wavelengths focussed for a small scattering range near  $90^\circ$ ; it will nicely complement powerful TOF strain-scanning machines such as VULCAN. Finally, we are also investing in large 2D gas detectors of the kind constructed for Los Alamos by BNL, only twice as large. One of these 1+ steradian detectors has already been constructed for our single crystal protein diffractometer D19, and a second is planned for a new real-time powder Diffractometer for Rapid Acquisition (DRACULA).