



Contribution ID: 82

Type: **Presentation**

## **POPLAR: An upgraded ORNL beamline for the development of polarized neutron and Larmor labelling techniques**

Oak Ridge National Laboratory (ORNL) has built and commissioned a development focused thermal beamline at the HB-2D position of the High Flux Isotope Reactor (HFIR) with the goal of testing neutron scattering instrumentation and advancing neutron scattering methods, and a special focus on polarized neutron techniques. POPLAR was designed to be as flexible and configurable as possible and can accommodate multiple setups including spherical neutron polarimetry, Larmor diffraction, longitudinal polarization analysis, and quasi-elastic neutron spin echo as well as hosting closed cycle refrigerators and position sensitive detectors such as Anger cameras and Timepix-3 cameras for polarized neutron imaging. POPLAR is equipped with variable height hydraulic optics tables, a goniometer with diffraction arm, and a Popovici double bent silicon crystal monochromator which can be adjusted via elastic bending to tailor the instrument for high resolution or high intensity modes. It can provide wavelengths of 2.43 Å and 1.71 Å, with intensities of 1.75 and  $1.28 \cdot 10^5$  n/(cm<sup>2</sup> · s) respectively. This instrument will complement the CG-4B cold neutron development beamline at HFIR and the two can be used in conjunction with similar or identical sample environments. POPLAR is currently operational and further upgrades are planned for the future such as increased flux and configuration options..

**Primary author:** DIAZ, Arturo (Oak Ridge National Lab)

**Co-authors:** LI, Fankang (Oak Ridge National Laboratory); BURRAGE, Kaleb (Oak Ridge National Lab); LU, Wei (Oak Ridge National Lab); GIULIANO, Dominic (Oak Ridge National Lab); CROW, Lowell (Oak Ridge National Lab); TIAN, Wei (Oak Ridge National Lab); KYLE, Doug (Oak Ridge National Lab)

**Presenter:** DIAZ, Arturo (Oak Ridge National Lab)

**Session Classification:** POLARIZATION