Title: Mantid – Advances and challenges in a growing collaboration

Topic: Neutron Instrumentation, Optics, Sample Environment, Detectors and Software

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Preferred type of presentation: Oral

The Mantid[1] project was started by ISIS (RAL UK) in 2007 to provide a framework to perform data reduction and analysis for neutron and muon instruments and to accommodate the increasing data volumes from newer instruments[2]. The project has grown into a significant international collaboration, with SNS and HFIR joining in 2009, the ESS joining last year and we expect the ILL to become a member this year.

The scope of data reduction and analysis challenges that Mantid faces, together with the need to create a cross platform solution, fuels the need for Mantid to be developed in collaboration between facilities. Mantid has, from inception, been an open source project, and having been built to the flexible enough to be instrument and technique independent, was initially planned to support collaboration with other development teams. Through collaboration with the SNS, development practices and tools have evolved to support the distributed development team in this challenge. These new members have added development capacity, invaluable experience and significant improvements to the project, both in direct functionality adding world leading event processing and multi-dimensional visualization, and improvements to the project and development infrastructure.

Mantid continues to face many challenging requirements both from developments within its existing facilities and additional challenges from new and prospective members. Some of these include extending Mantid’s multi-dimensional visualisation to support imaging techniques, improving the handling of moving instruments to better support triple axis spectrometry. Providing ‘live’ access to reduced data during the experiment, even in the extreme cases of large excitations experiments.

This talk will highlight some of the current capabilities and developments within Mantid, and present plans for Mantid in the future.

References

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

[2] O. Arnold, et al., Mantid—Data analysis and visualization package for neutron scattering and μSR experiments, Nuclear Instruments and Methods in Physics Research Section A, Volume 764, 11, 156-166 (2014), <http://dx.doi.org/10.1016/j.nima.2014.07.029>

