**Mantid as a tool for μSR analysis**

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The development of Mantid[1] offers the muon community access to an analysis framework that is attracting broad international support, with both ISIS and the SNS committed to using it as the primary means of data analysis. The Mantid project provides an open source cross-platform framework of core routines and visualisation tools on which the various scientific communities can build analysis software specific to their needs. Here, we report on a successful development of μSR analysis tools for the ISIS muon group, to analysis data collected on the instruments EMU, ARGUS, MuSR and HIFI.

Figure 1a shows the muon interface running within the Mantid framework. Functionality for data access, detector grouping, data fitting, and data plotting is provided on a tabbed panel, together with an ability to setup preferences for interacting with the interface. The visual interface makes calls to Mantid algorithms that are designed and coded to perform specific tasks within the workflow associated with analysing muon data. These include applying deadtime correction to the data, calculating asymmetry plots and data fitting with muon specific functions. All algorithms are available from the Mantid Python scripting interface, enabling users to carry out automated data reduction and to build customised analysis tools for specialised experiments. Figures 1a and 1b show screen shots of data fitting and instrument visualisation, respectively, and illustrate that although muon data analysis requires certain specialised algorithms, their implementation and application greatly benefits from both the algorithms and tools already available within the Mantid environment. Some of the work presented here was also recently reported in[2].

**References**

[1] www.mantidproject.org

[2] S. Cottrell et al., Physics Procedia 30, 20-25 (2012)

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Figure 1a Figure 1b

