The ILL Joins the Mantid Project

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Talk Overview

• Mantid and Adoption at the ILL
• Working with the Mantid Team
• LAMP and Mantid for Data Reduction
• Workflows
  - Time-of-Flight Spectroscopy
  - Backscattering
• Future Work
The Mantid Project – Neutron Data Reduction
The Bastille Project for Mantid Adoption

• Bastille project, part of ILL’s Endurance programme, to support 20 ILL instruments after 3 years, replacing LAMP

• People involved:
  - Antti Soininen, Verena Reimund, Gagik Vardanyan
  - Ian Bush – technical lead for one year – from Tessella
  - Miguel González – scientific lead for the project – from ILL’s CS Group
Working with Distributed Partners

GitHub <-> Jenkins

slack

BlueJeans <-> Skype

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LAMP and Mantid

The text reads: "LAMP and Mantid" followed by a diagram showing the software interfaces of LAMP and Mantid. The software interfaces include graphs and data analysis tools, indicating the use of these tools in scientific research.
LAMP and Mantid

Workspaces
LAMP and Mantid

Algorithms
LAMP and Mantid
LAMP and Mantid

The image shows a page from a document discussing LAMP and Mantid, with a focus on scripting. The text snippet includes code examples for data reduction batch files and scripts for use with Mantid. The code appears to be written in Python, with comments and annotations for clarity. The page also features a header with a diagram and the name of an institution, indicating the context of the document is likely academic or research-oriented.
ILL Workflows

• Started with Time-of-Flight Spectrometry (IN4/5/6) and Backscattering instruments (IN16B)

• Initial work started by:
  - Ricardo Ferraz-Leal (loaders, instrument definitions, sample scripts)
  - Spencer Howells and Elliot Oram (IN16B workflow)

• Features to support workflows:
  - File loading and merging sample logs
  - Flat background moving window average
  - Incident energy calibration for ToF Instruments
Time-of-Flight Workflow
Time-of-Flight Workflow
Time-of-Flight Workflow

Mantid

Detector Tubes

Neutron Beam +Z
Time-of-Flight Workflow
Instrument Definition – IN6 Original
Time-of-Flight Workflow
Instrument Definition – IN6 Updated
Time-of-Flight Workflow
Instrument Definition – IN4 Original
Time-of-Flight Workflow
Instrument Definition – IN4 Updated
Backscattering Workflow – IN16B
Backscattering Workflow – IN16B

IN16B Raw Data

Channel Number

Spectrum Number

Counts

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mantid

I N S T I T U T M A X V O N L A U E - P A U L L A N G E V I N
Backscattering Workflow

![Graph showing IN16B Raw Data - Summed with peaks labeled Left Workspace and Right Workspace and a section labeled Elastic Peaks.](#)
Backscattering Workflow – Lamp and Mantid
Future Work – ILL Instruments

- Started on ToF and Backscattering...
- ...SANS...
- ...reflectometry...
- ...diffraction
Future Work – Scanning Instruments

- Support the instruments at ILL with movable detectors, such as D2B, D4, D7 and D16

D2B – Powder Diffractometer

Sample

Detectors

Neutron Beam
Future Work – Scanning Instruments

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Future Work, Summary and Conclusions

- SINE2020 funding for Mantid on continuous sources
- SINE2020 funding for data analysis work:
  - QENS – GUIs, fitting and analysis in Mantid
  - Simulation – MDANSE, DFT
- Mantid adoption well under way at the ILL...
- ... but still a long way to go

Thanks for listening!