Data Reduction at CSNS

Data Reduction

Instruments in operation

1 Powder Diffraction

Instruments: GPPD

- **Good correction algorithm for heavy absorption samples**
- **More precise position correction for tof-to-d conversion, where TOF=c0*(1+offset)*d is not enough for very high resolution requiements, such as single crystal measurement.**

2 SANS

Instruments: SANS

- **Inconsistence of 2D data in qx and qy, due to the vertical and horizontal resolution difference of the detector. And the converging of 2D data from different wavelength with different resolution.**
- **Converging of data merged from the bank cross wide angle**
- **Resolution calculation and resolution function for TOF I(Q)**
- **Possible smearing correction for I(Q)**
- **Data analysis and simulation for GISANS**

3 Reflectomery

Instruments: MR

- **Data stitching from the measurements with different angles**
- **Data reduction for Off specular reflection**
- **Absolute calibration for R(Q) in different angle and detector areas**
- **Data reduction for diffraction**

Instruments under commissioning

1 Disordered PDF

Instruments: MPI

- **Good correction algorithm for inelastic scattering, like H**
- **Good correction algorithm for multiple-scattering**
- **Convince of S(Q) merge with different resolution**
- **Possible resolution deconvolution for S(Q)**

Instruments under construction

1 Imaging

Instruments: ENRI

- **Whole profile fitting for Bragg-edge Imging**
- **CT reconstruction with high space resolution**

2 Engineering Diffraction

Instruments: EMD

- **Texture analysis of orientation distribution function (ODF)**
- **Auto Position fitting with different profile functions**
- **Position correction for the application with very high resolution**

3 Very small angle scattering

Instruments: VSANS

- **Merge scattering data from different detectors with different neutron detection efficiencies. (we have 3 He3 detectors and 1 vsans B10 GEM detector)**

GUI

MantidPlot & Workbench

- **Develop new GUI for all instruments in workbench instead of MantidPlot**
- **Improve the stability of GUI, where frequent crashes in usage of Cloud**
- **Improve the speed of data loading**
- **Parallel handling for time slice**
- **Reduce the memory usage for big data handling**
- **Solve the bug that keyboard is lost sometimes**

Web

- **Develop web application for all instruments**
- **Integrate the authorization and authentication**