

SSG_000116 Reciprocal Space Mapping

Project description

This project aims to provide a means to process diffraction data collected at APS and represent the result as a 3D Reciprocal Space Map. This project will also provide the means to look at various cuts through the map. The input for processing of this data consists of a series of images collected over a range of diffractometer angles and or input energy. These images will be collected so that they cover a reasonable section of reciprocal space. Examples of cuts through the data ([shown here](#)) include:

- Isosurfaces of the 3D map
- Plane cuts through the 3D Map
- Histograms of Intensity vs $|Q|$ (esp. for powder diffraction)
- Pole Figures (angular maps at constant $|Q|$)

Benifits

This project has the potential to serve a number of beamlines at APS (33-BM, 33-ID, 34-ID, 6-ID,...) by providing a general tool for examination of diffraction data at the APS. This tool will enable users to get a better look at the data taken while at the beamline. This look will give an opportunity for users to make better decisions on the next set of data that will be collected. One goal of the project will be to provide a tool that can be used at the beamline, but should be able to be packaged so that a user can simply install this on a home machine after they have left the APS.

[Desired results](#) shows the types of visualizations that are commonly used after data collection.

Input data

[Meeting Minutes](#) is a list of meetings held related to the project.

Deliverable

Software

[Code repository](#)

[Installation Instructions](#)

[Configuration files](#)

[Example Data](#)

[A beginner's guide to processing data](#)