Overview of use cases (DAS-33)

[DAS-38] For McStas Created: 2019-Mar-26 Updated: 2019-Apr-30

Status:	Review
Project:	Diffraction Analysis Software
Component/s:	None
Affects Version/s:	None
Fix Version/s:	None

Type:	Sub-task	**Priority:**	Normal
Reporter:	Thomas Holm Rod	**Assignee:**	Piotr Rozyczko
Resolution:	Unresolved	**Votes:**	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:	Fire_paraview_2.png Isocontours_representation.png mcdisplay_demo.png mlog_all_reflection_elliptic_large.png plot_demo.png

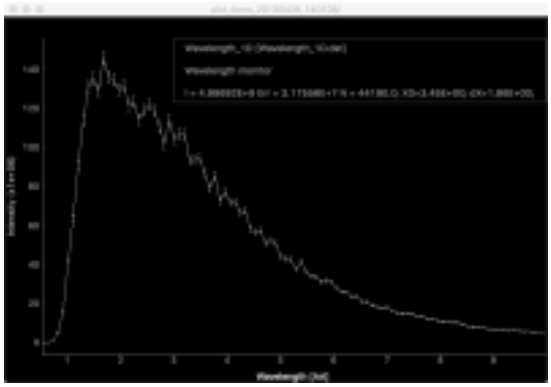
Description

Current McStas Requirements

The requirements for McStas are currently simple as only 1D and 2D data is supported. The instrument viewer uses a 3D view, but only for a wireframe model of the instrument. Requirements for future expansions is discussed at the end.

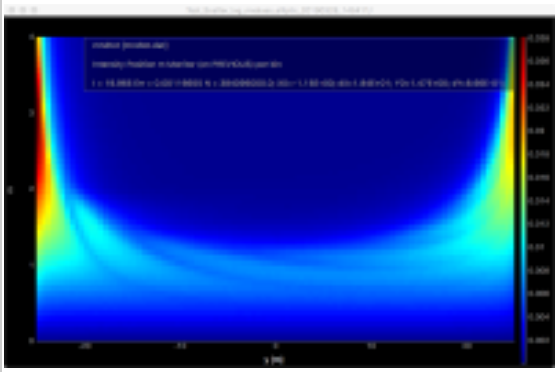
McStas 1D plot

(x,y) plot with errorbars on y direction, labels on both axis and text overlay. Possibility for logarithmic scales. Possible to zoom and move data.



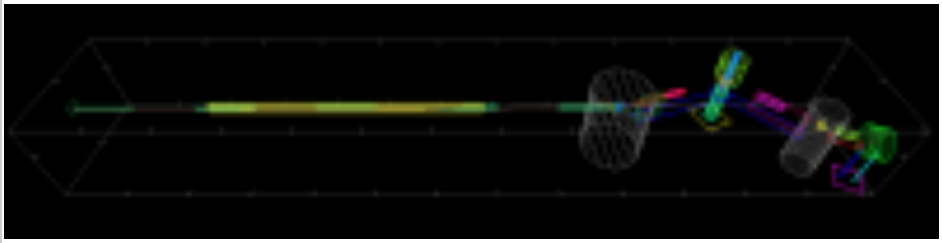
McStas 2d plot

Two dimensional colorplot where pixels are centered on the datapoints and colored after this value. Logarithmic color scale possible. Possible to zoom and move data.



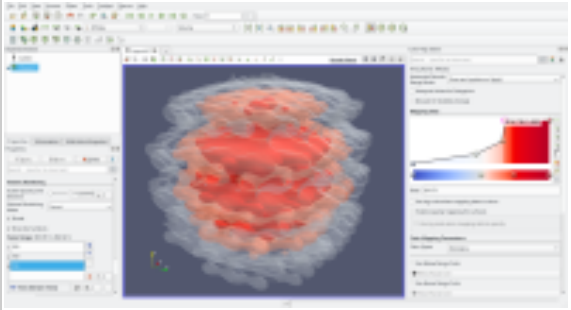
McStas instrument viewer

Displays the instrument in either 2D projections or 3D. Only contains lines of different colors. 2D versions should be able to zoom (each axis independently) and move, while 3D view also needs rotation. The 3D view is currently using webgl.



Requirements for implementations of planned features and ideas

Three dimensional datasets are written by McStas monitors, but often in the sense of a range of two dimensional datasets which is not ideal. There have been plans for allowing true three dimensional data, which would also require plotting. The primary concern would be that picking a method for plotting 3D data is highly dependent on the specific data to plot, and this approach should work for most data sets. A 3D volumetric approach is probably the one most likely to be usable in all cases, perhaps with isocontours as below (example from paraview). The possibility for interactively slicing it would be very useful.



Combining data and instrument viewer would make some plots easier to interpret. 2D plots could be shown as in Mantid where the data is displayed on the detector. 3D data could again be shown as a transparent volumetric cloud (example from paraview).