

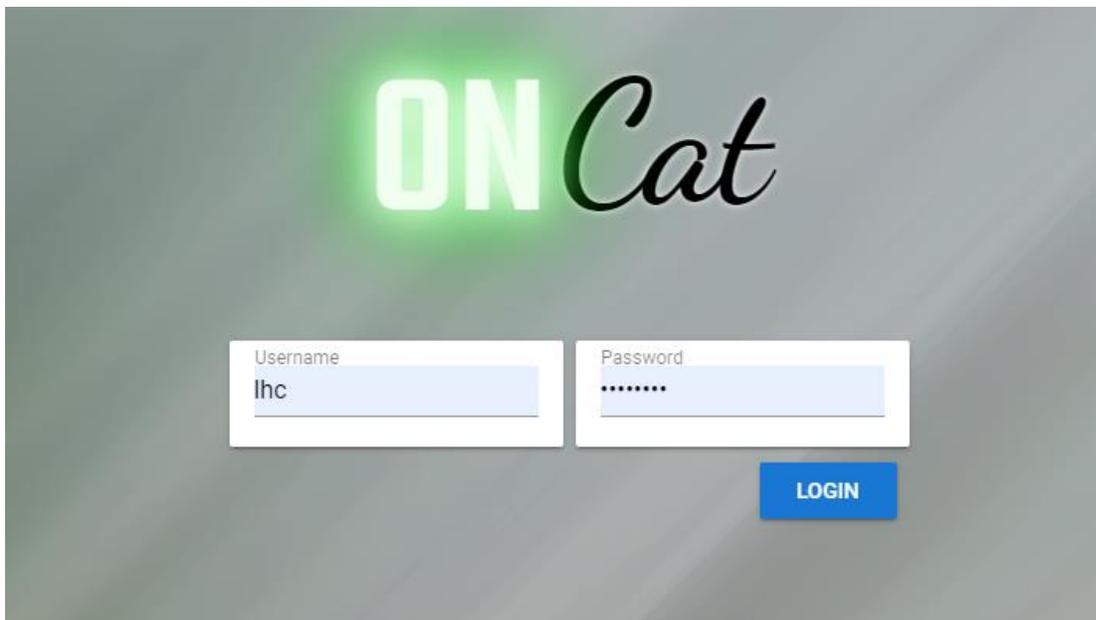
SANS Data Reduction for CG2(GP-SANS)

Part I: Browse your data

Visit this website:

<https://oncat.ornl.gov/#/>

Sign in with your ucams username and password



ON Cat

Username
lhc

Password

LOGIN

Click explore, select HFIR and then CG2, pick your IPTS, i.e. 21766

| ONCat | | | | |
|---------------------------|------------------------|------|---|---|
| EXPLORE | → | HFIR | → | CG2 |
| IPT-23801 | | | | <i>Commissioning new collimators and EPICS/CSS on GP-SANS</i> |
| IPT-22474 | | | | <i>In-situ Precipitation kinetics in novel TRIP steel alloys</i> |
| IPT-22279 | | | | <i>Characterization of Nanoprecipitates in NiCoFeCr-3Cu High Entropy Alloy</i> |
| IPT-22031 | | | | <i>Discerning the Coalescence of He Bubbles in Tritiated Stainless Steels</i> |
| IPT-21978 | | | | <i>Interface Magnetism of a Coordination Network Heterostructure</i> |
| IPT-21799 | | | | <i>Structure of RTIL aggregates for f-block element separation</i> |
| IPT-21766 | | | | <i>Elucidation of Ligand Arrangement on Nanoparticle Surfaces</i> |
| IPT-21674 | EXP342 | | | <i>SANS investigation to perform in-situ dynamics measurements of skyrmion lattice in FeGd thin films.</i> |
| IPT-21564 | EXP325 | | | <i>Explore and optimize macrocycle-derived gel systems with multidimensional porosity for selective gas separa</i> |
| IPT-21553 | EXP319 | | | <i>SANS study on the molecular relaxation and structural evolution of multi-functional 3D-printing lignin based c</i> |
| | EXP321 | | | |
| IPT-21537 | EXP320 | | | <i>NX School: Pore Structure of Silica Studied by Contrast-Matching Small Angle Neutron Scattering</i> |
| IPT-21519 | EXP317 | | | <i>SANS investigation into the stability of the ambient condition skyrmion lattice in FeGd thin films.</i> |
| IPT-21467 | EXP310 | | | <i>Identification of thin film SANS in Mag-G (11 T superconductor magnet)</i> |
| IPT-21406 | EXP309 | | | <i>Effects of strain on flux lattice lines for application to SRF Nb cavities</i> |
| | EXP327 | | | |
| IPT-21368 | EXP334 | | | <i>The effect of crosslinking on the morphology of phase separation in Anion Exchange Membrane for use in ele</i> |

You will see all the scans of your samples. Click “download CSV” in the upper-right corner

He, Lilin

DOWNLOAD INFO

Run Range(s), e.g. "12-15, 17"

| ire 1) | Sample Changer Name | Sample Changer Position | Sample SI Distance (mm) | Sample Detector Distance (m) | Sample Temp (K) | Attenuator | Wavelength (Å) | # Guides | Path |
|--------|---------------------|-------------------------|-------------------------|------------------------------|-----------------|------------|----------------|-----------|--|
| 00 | Banjo | 3681400538.857143 | 64.00 | 1.00 | 3.00e+2 | x10k | 4.75 | nguides 4 | /HFIR/CG2/IPTS-21766/nexus/CG2_8525.nxs.h5 |
| 00 | Banjo | 4294967295 | 64.00 | 1.00 | 3.00e+2 | x10k | 4.75 | nguides 4 | /HFIR/CG2/IPTS-21766/nexus/CG2_8524.nxs.h5 |
| 00 | Banjo | 4 | 64.00 | 1.00 | 3.00e+2 | Open | 4.75 | nguides 4 | /HFIR/CG2/IPTS-21766/nexus/CG2_8523.nxs.h5 |
| 00 | Banjo | 3 | 64.00 | 1.00 | 3.00e+2 | Open | 4.75 | nguides 4 | /HFIR/CG2/IPTS-21766/nexus/CG2_8522.nxs.h5 |
| 00 | Banjo | 2 | 64.00 | 1.00 | 3.00e+2 | Open | 4.75 | nguides 4 | /HFIR/CG2/IPTS-21766/nexus/CG2_8521.nxs.h5 |
| 00 | Banjo | 1 | 64.00 | 1.00 | 3.00e+2 | Open | 4.75 | nguides 4 | /HFIR/CG2/IPTS-21766/nexus/CG2_8520.nxs.h5 |

According to this excel file, you fill out this table:

| Sample | 19.2m Scatt | 19.2m Trans | 6.8m Scatt | 6.8m Trans | 1.0m Scatt | Thickness (mm) |
|---------------------|-------------|-------------|------------|------------|------------|----------------|
| Beam Center | | 8378 | | 8402 | 8402 | |
| Dark Current | | | | | | |
| Al4 | 8376 | 8384 | 8392 | 8400 | 8408 | 11.14 |
| Air | 8378 | 8386 | 8394 | 8402 | 8410 | |
| Empty Cell | 8377 | 8385 | 8393 | 8401 | 8409 | 1 |
| D-janus_CDCl3/CHCl3 | 8379 | 8387 | 8395 | 8403 | 8411 | 1 |
| Mixed_c7d8/c7h8 | 8380 | 8388 | 8396 | 8404 | 8412 | 1 |
| Sample xxx | | | | | | |
| Sample xxx | | | | | | |

Part II: Reduce your data using Jupyter Notebook

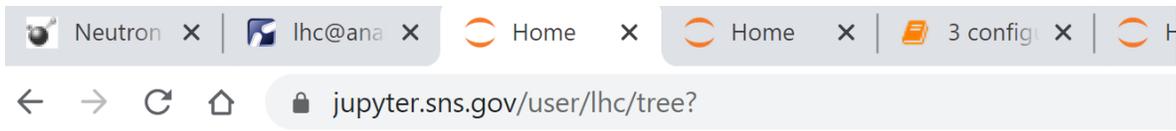
Go to this website, Sign in with you UCAMS ID and password

<https://jupyter.sns.gov/hub/login>

Sign in

Username:

Password:



jupyter

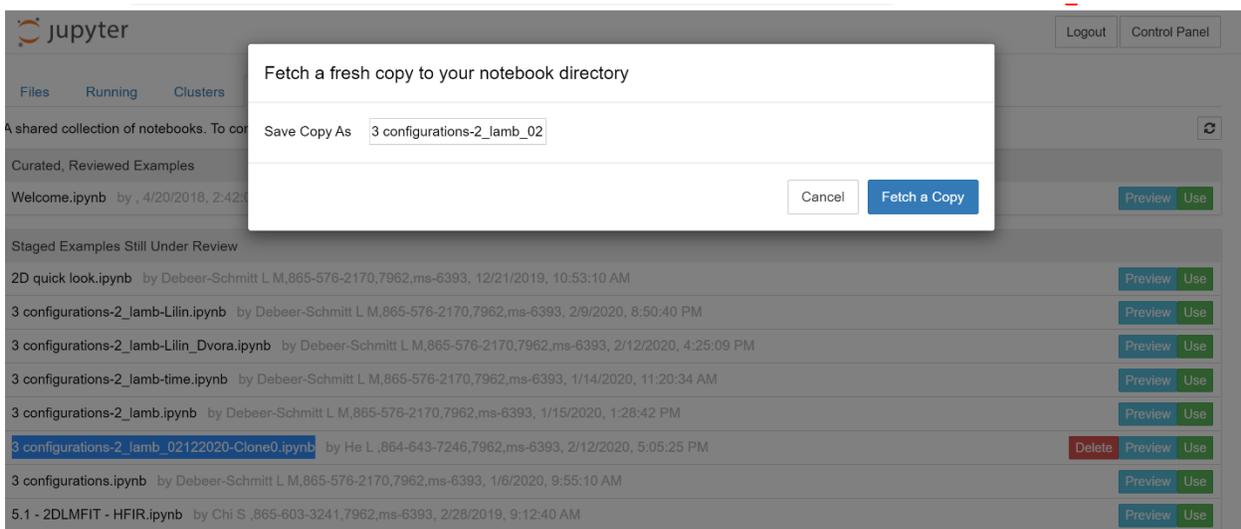
Files Running Clusters **Examples** Nbextensions

Select items to perform actions on them.



Click "Examples" then select "3 configurations-2_lamb_02122020-Clone0.ipynb"

Click use and fetch a copy



```
import matplotlib.pyplot as plt
import matplotlib.colors as colors

import os
import numpy as np

Set up configurations and background data

In [11]: ipts=21241
#Low-q,mid-q,high-q order for all Lists
data_lowq=[8845,8855,8860,8865]
data_midq=[8847,8857,8862,8867]
data_highq=[8849,8859,8864,8869]
center_files=[8846,8848,8848]#Low-q,mid-q,high-q order
db_sample_low=[8846,8856,8861,8866] #Copy data_Lowq if not using beam trap at Large Lambda
db_sample_mid=[8848,8858,8863,8868]
sample_name=["D20_10RPM", "D20_250RPM", "PSS2%_0RPM", "PSS2%_50RPM"]

#bck= [8713,8719,8725]
#bck_db=[8716,8731]

#bLock_beam = [7615,7612,7618]
nbins=100
nxbins=160
nybins=160

attenuation_factor=0.000991763 #x2k at 4.75 angstroms.

flood_file='/HFIR/CG2/shared/sensitivity_7116.nxs'
output_dir = f'/HFIR/CG2/IPTS-{ipts}/shared/reduction/3_configs'

q_start_low=0.008
```

You only need to edit the second cell of the script. Based on the table you fill out earlier, you put the sample scattering scan numbers for three configurations, and corresponding transmission scan numbers as well as the file names for the reduced data. DO NOT change the center files. Once this is done, you will need to run the script from the first cell to the final cell in this script one by one. Once the final cell is done, your data should be ready for viewing.

Part III: View your reduced 1D and 2D data using Mantidplot

Visit analysis.sns.gov



Remote Analysis Service



Remote Desktop Capabilities

As a Neutron Sciences user, you can view, analyze and download your data from anywhere you go. You will be on a machine just like one you use in our Instrument Hall or Target Building. You can work with your data and use the Data Analysis tools provided. To get started using our webclient click the "Launch Session" button below. For more information about different ways to access your data, please see the "Connection Options" section below.

Launch Session

Launch Session



Username:

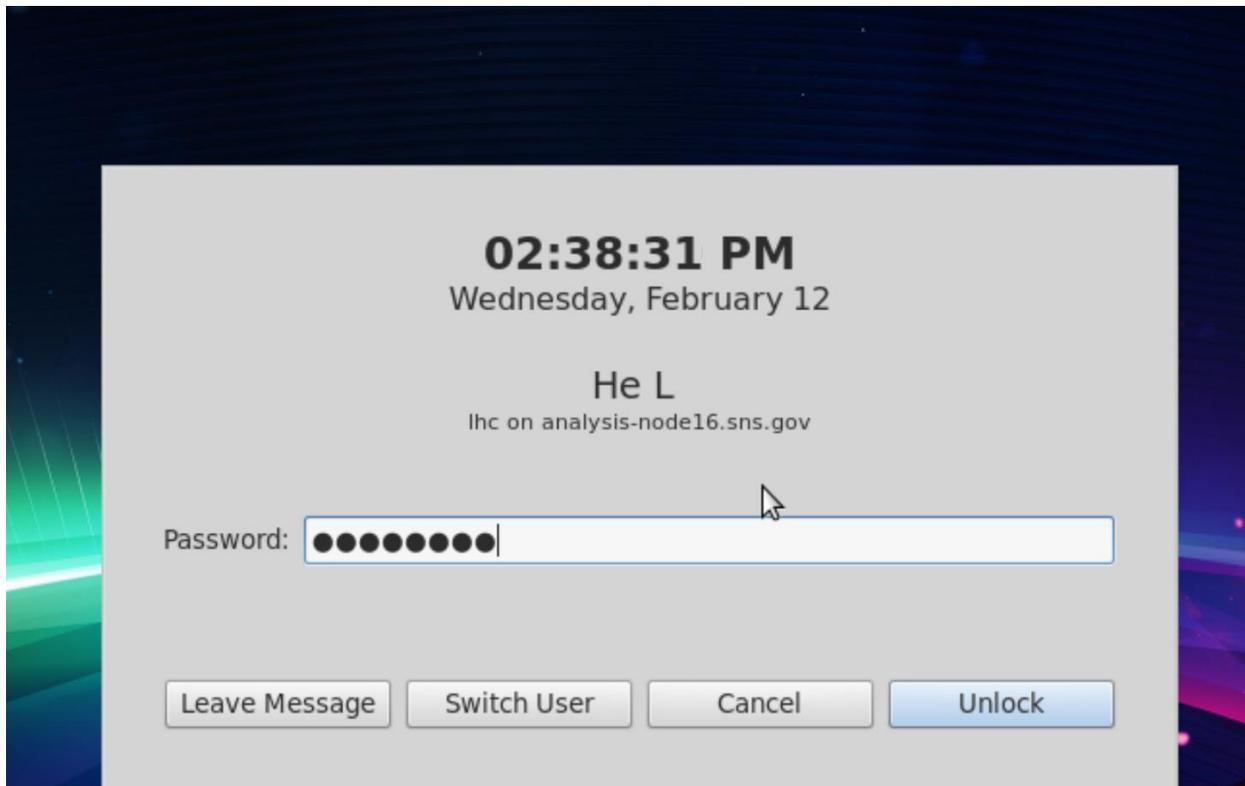
Password:

Login

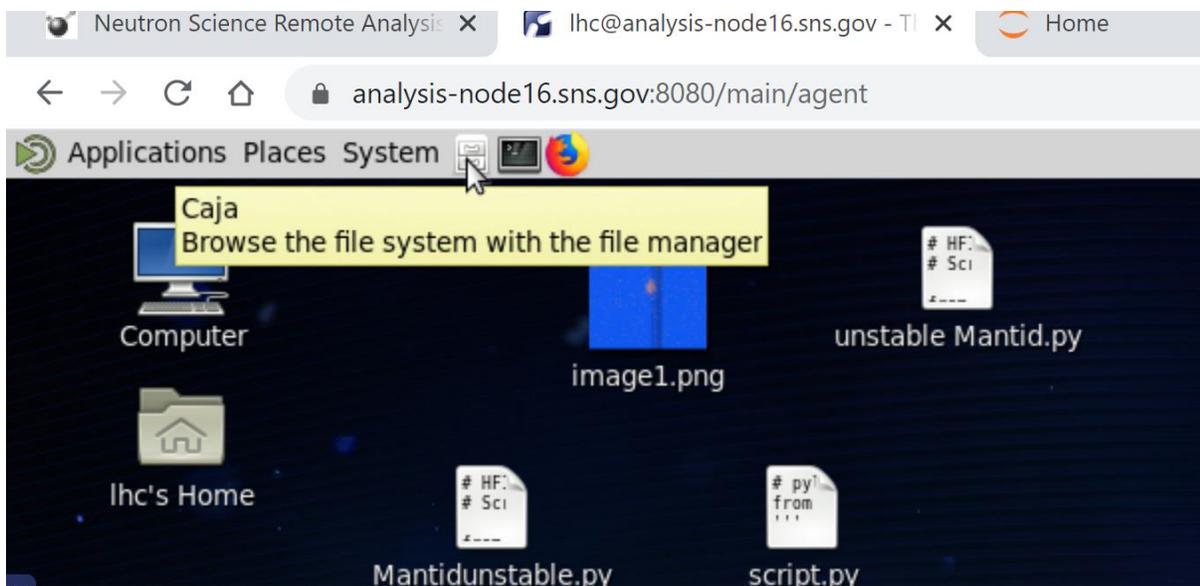
Version 4.10.1 (build 6197) on analysis.sns.gov

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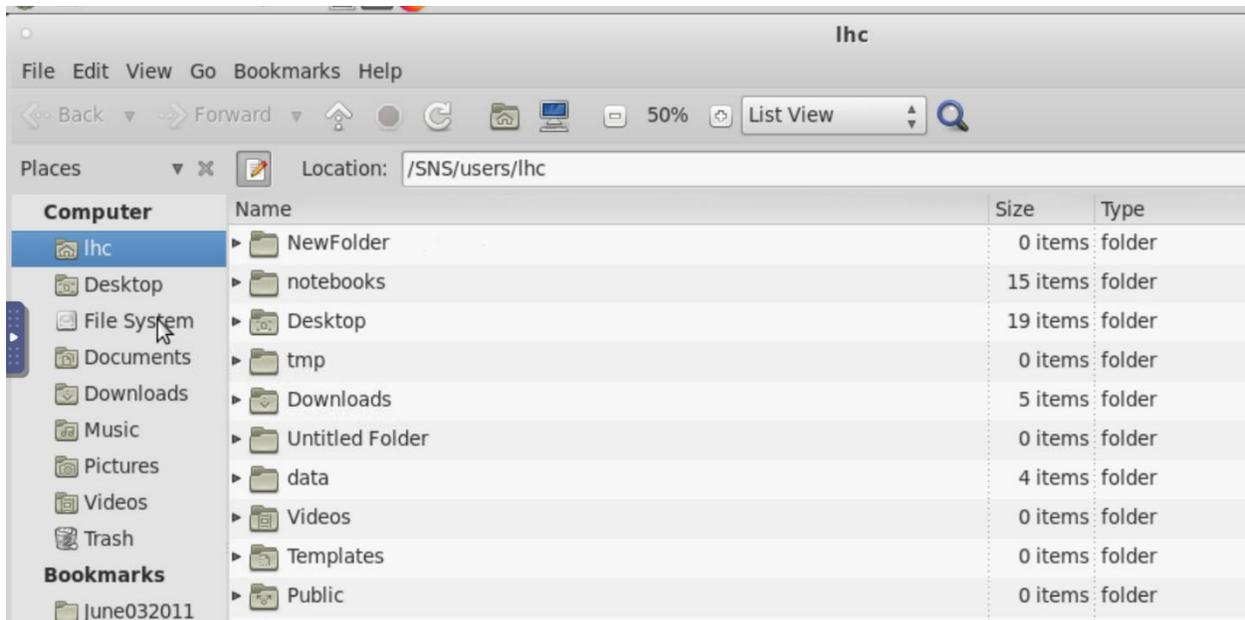
Log in with your UCAMS username and password



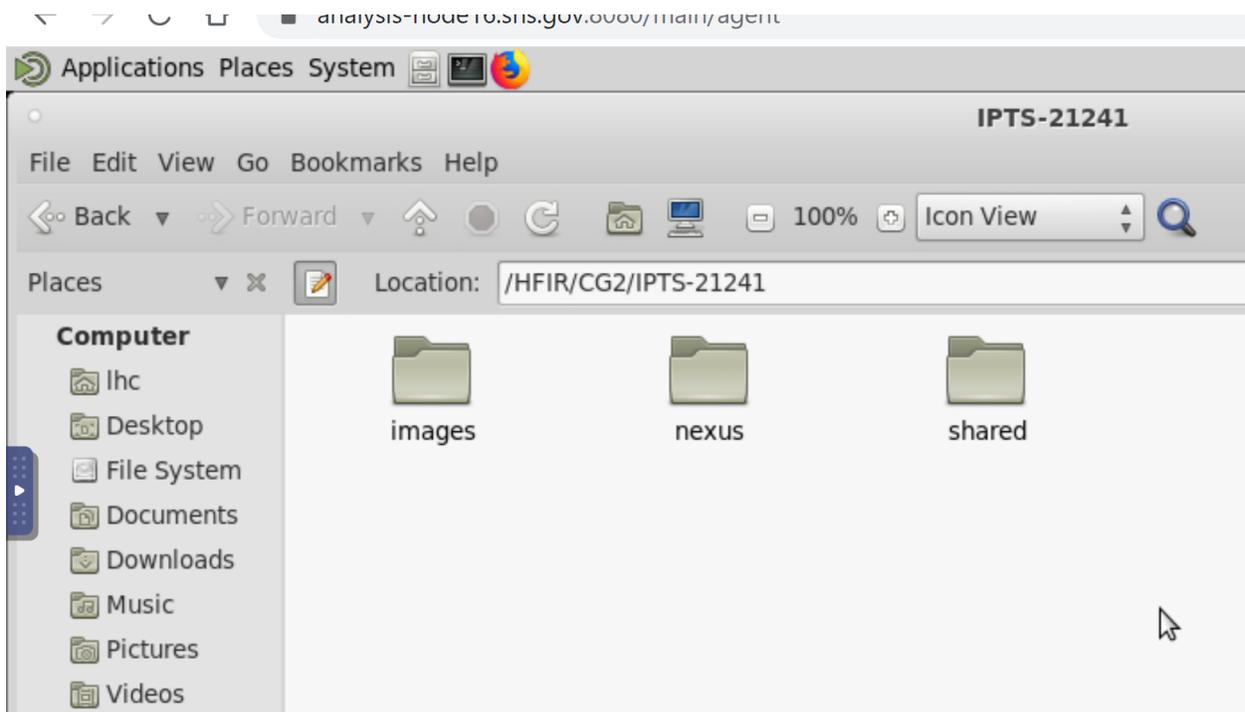
Type your password one more time



Open the file manager

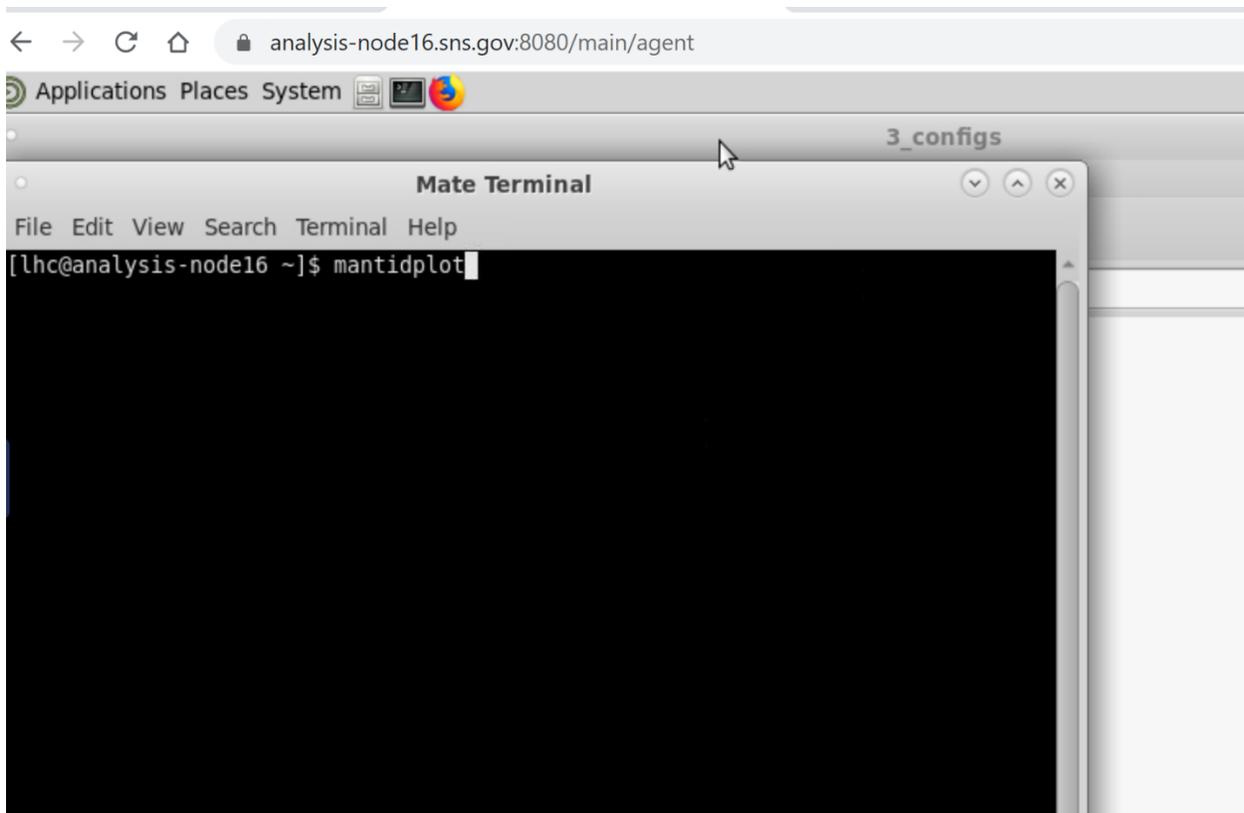
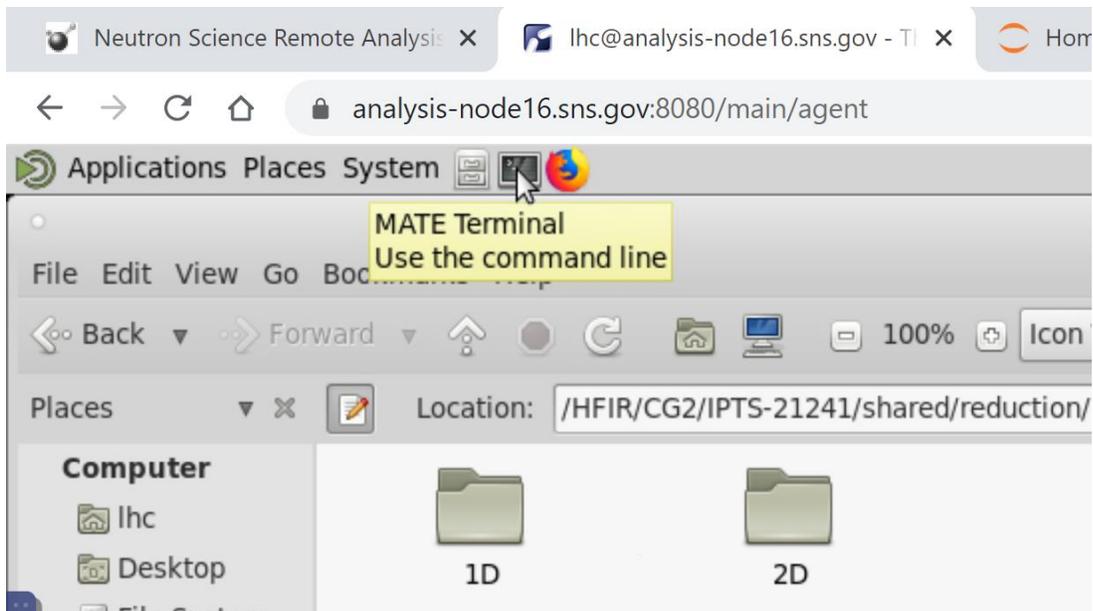


Go to file system



Go to the /HFIR/CG2/your IPTS number folder. The raw data are saved in nexus folder. The reduced data are saved in shared/reduction/3_configs/1D and 2D folders.

To browse raw data, reduced data, you will open MATE Terminal



Type Mantidplot to start Mantid

mantid

version 4.1.0

Welcome

-  Release Notes
-  Sample Datasets

Tutorials

-  Mantid Introduction
-  Introduction to Python
-  Python in Mantid
-  Extending Mantid with Python

You can revisit this dialog by selecting "First Time Setup" on the Help menu.

Do not show again until next release

Personal Setup

Default Facility

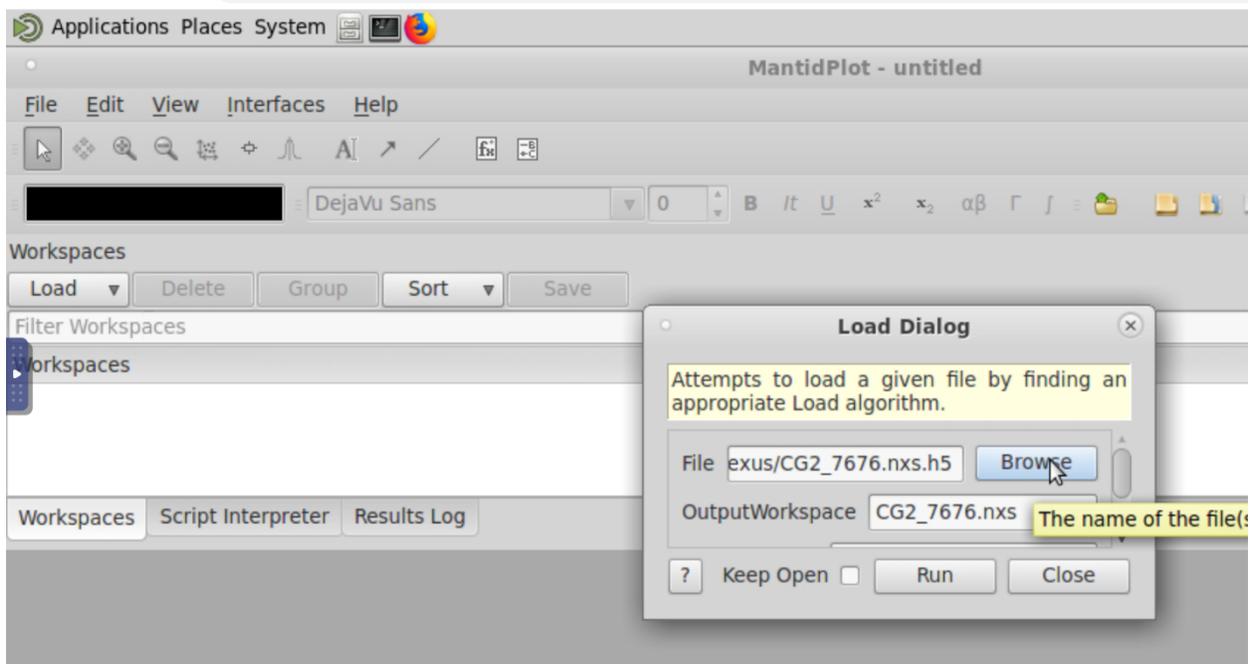
Default Instrument

Set data directories

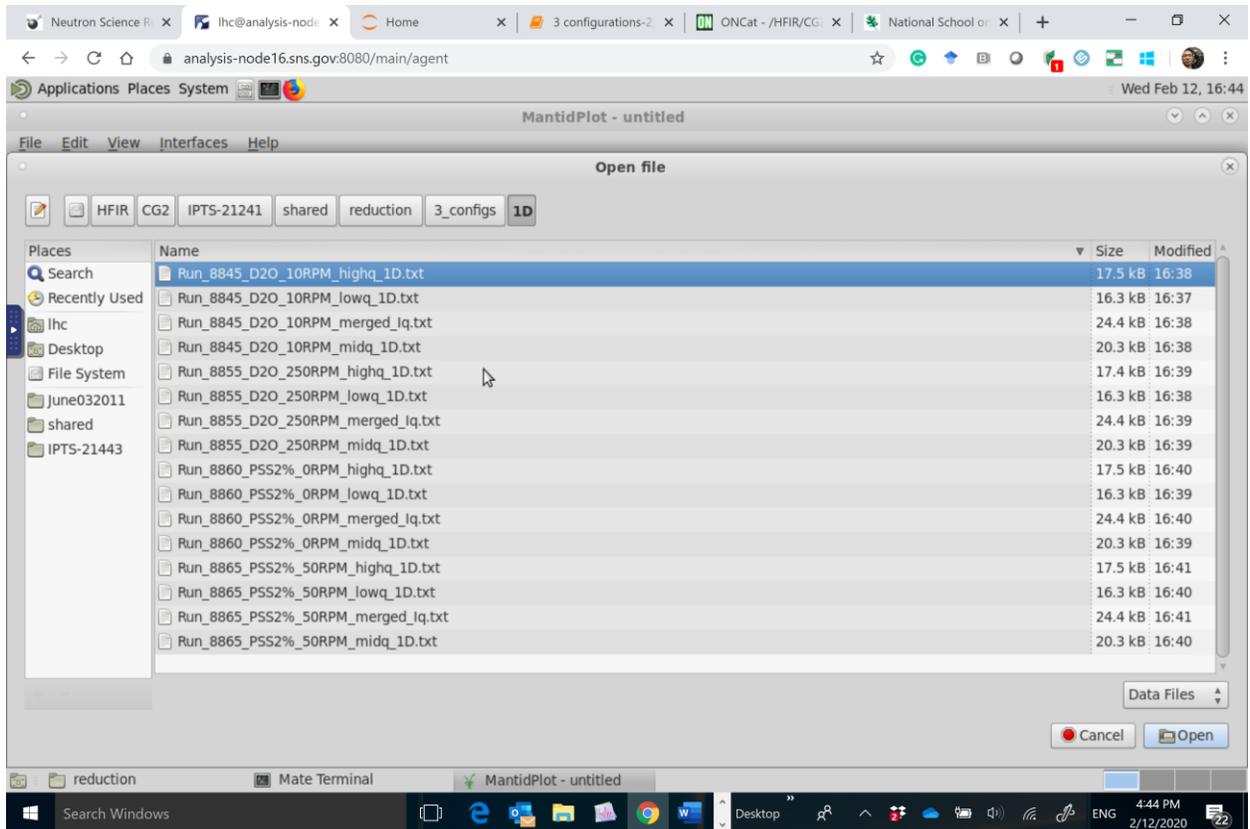
Report usage data [Privacy Policy](#)



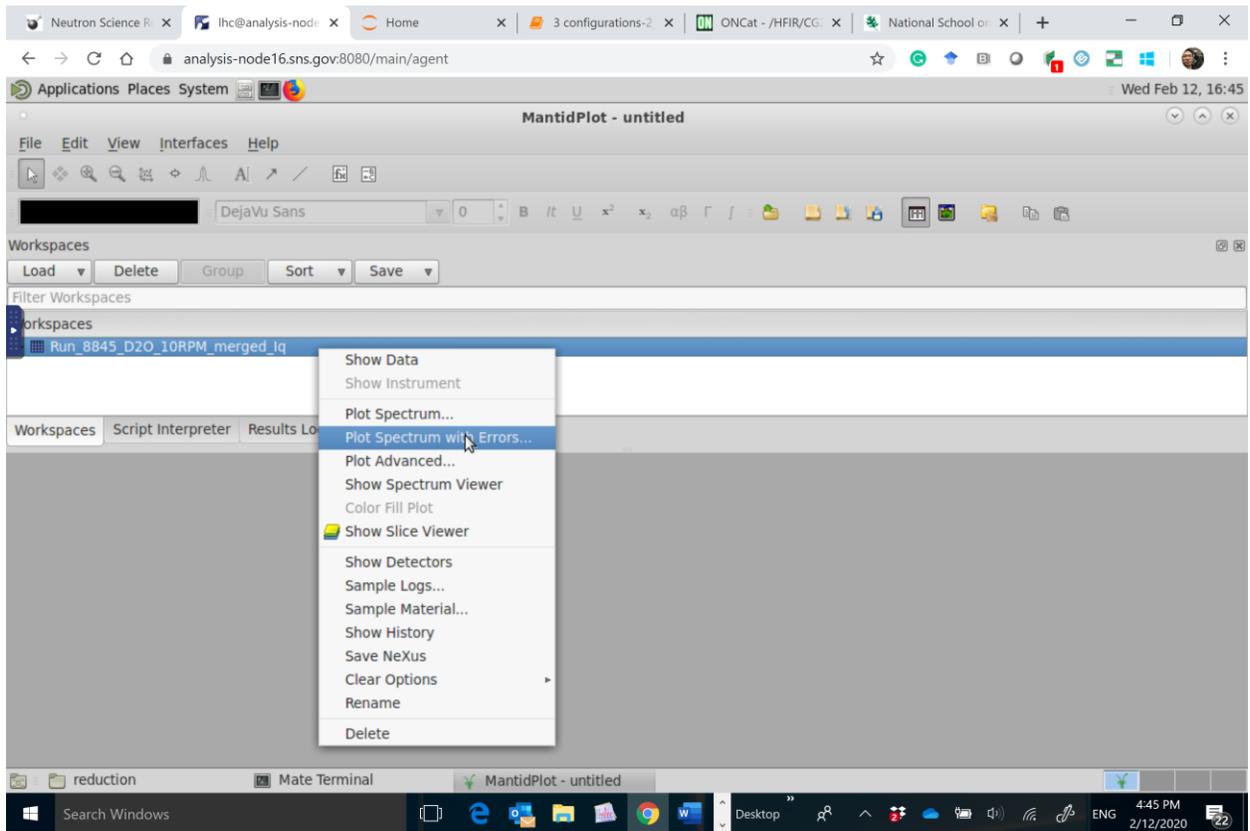
Pick HFIR and CG2, then press set



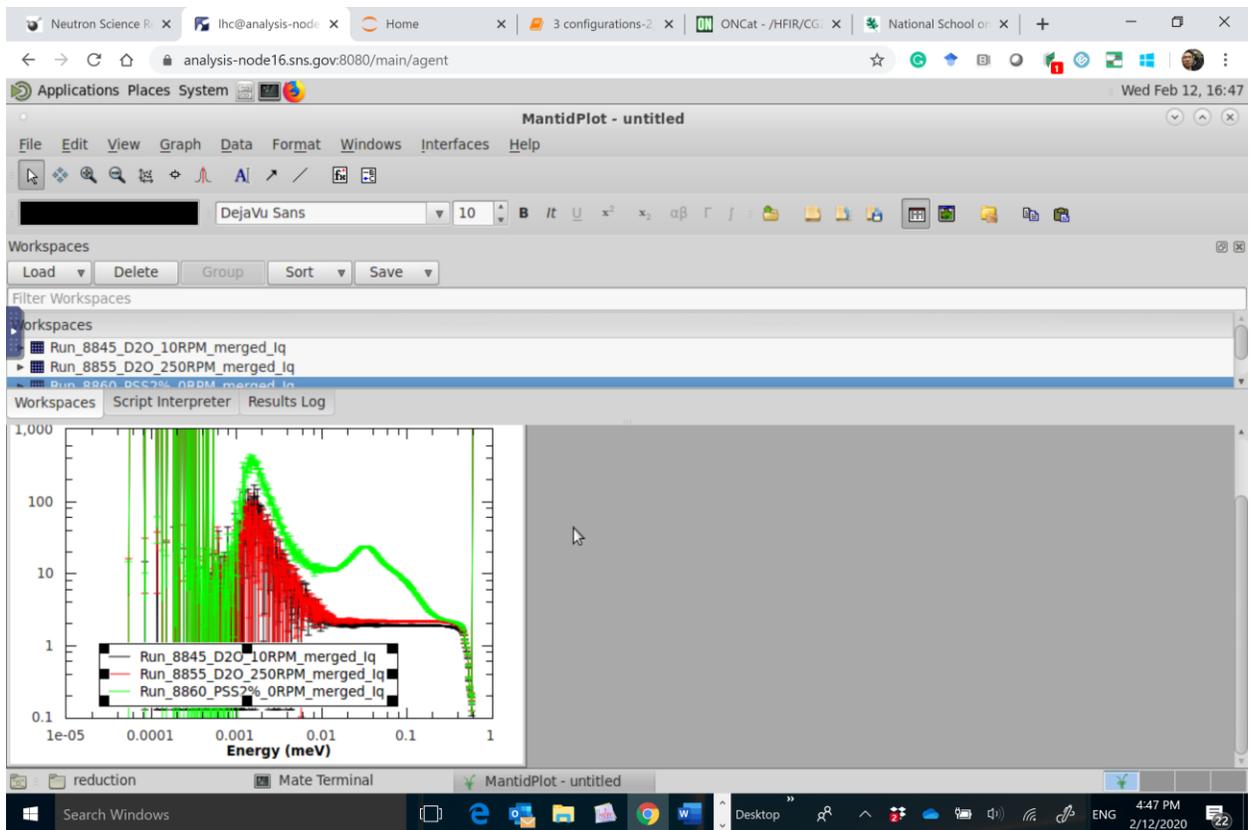
In Mantidplot window, browse your folder that contains your reduced data and load them.



Locate the file you want to view



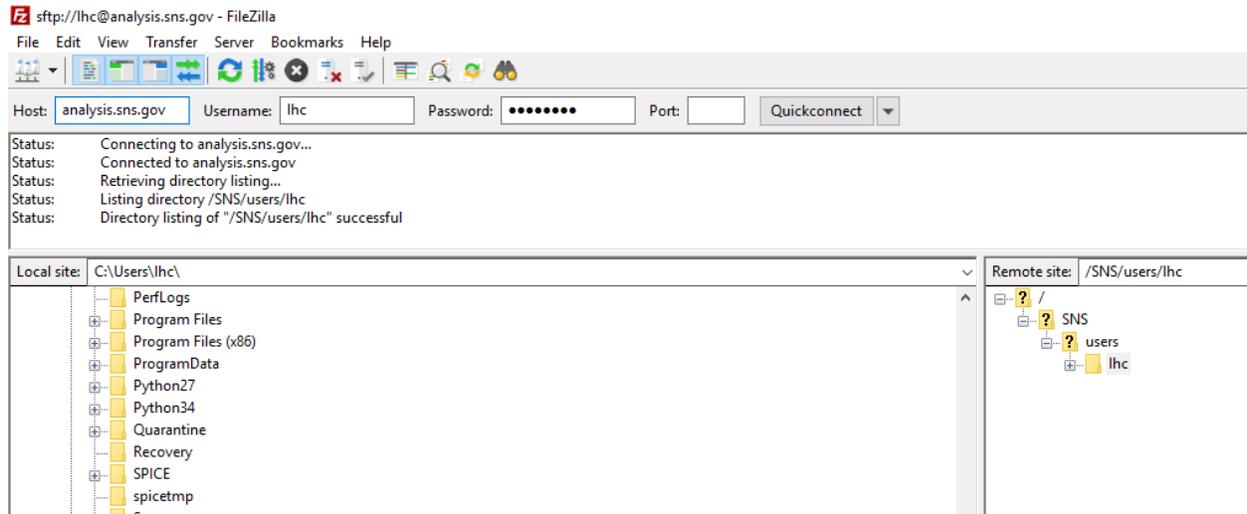
Plot it in Mantid and play with the range.



Load multiple datasets.

Part IV: Download your reduced 1D and 2D data to local computer

Download FileZilla that is a free software, cross-platform FTP application,



Host: analysis.sns.gov

Username: your UCAMS ID and Password

Port:22

Once you successfully connect to the cluster computer, you can transfer your data on the cluster computer to your local computer