

Testing the IDA GUI

This document is intended to guide the Mantid team's sandwich students on how to test the basic functionality of the Indirect Data Analysis (IDA) graphic user interface (GUI) within MantidPlot prior to each release. The purpose for this is to try and catch any bugs that may have been triggered by changes pushed to git. Essentially, unless there have been direct changes to the GUI or its underlying code, IDA should function as shown in this guide. If not, the issues need to be resolved.

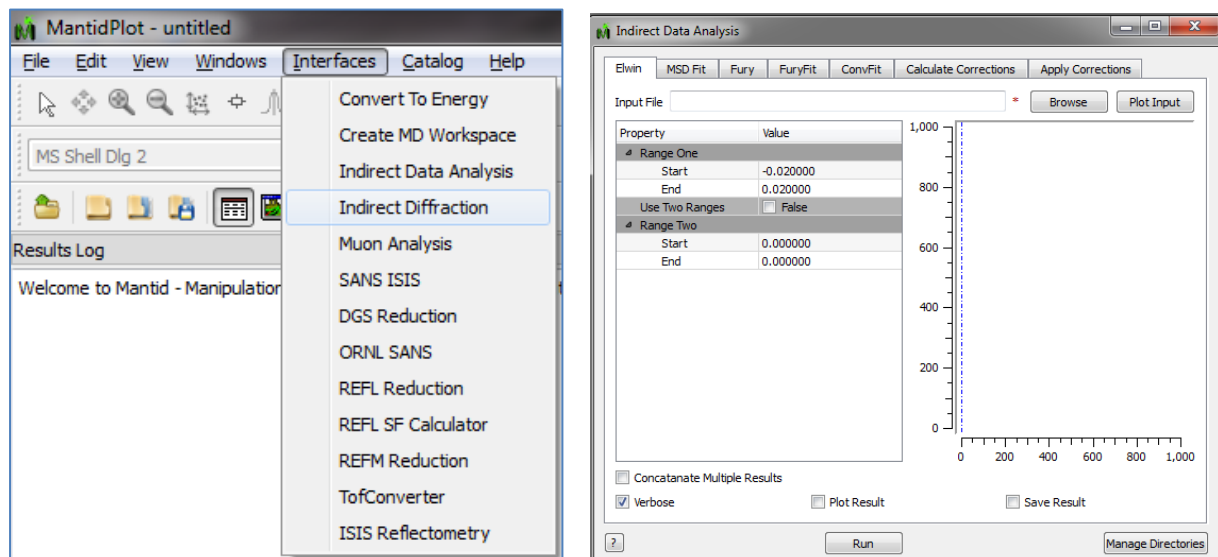
This guide will demonstrate how to test the IDA GUI by outlining the expected inputs, providing instructions and by showing example values in the screenshots. After following the accompanying instructions, the tester should then compare the outputs they get with the screenshots provided in this document.

As changes are made to the GUI and the underlying code, please update this document accordingly and add relevant files to the folder.

Notice: THIS DOCUMENT IS NOT A COMPLETE GUIDE on how to test IDA; it is only intended to introduce students to the workings of this particular interface in MantidPlot. As well as the **basic** testing outlined in this document, unscripted testing should also be carried out prior to release.

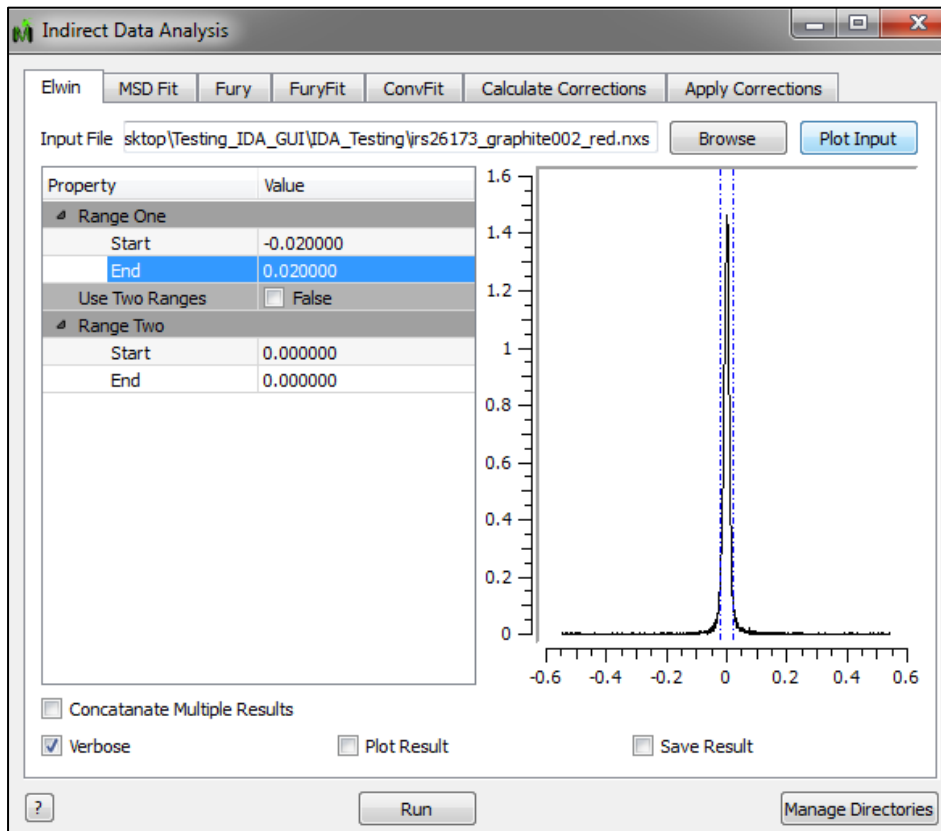
Get started

To begin, load up the IDA GUI. It will look as follows:

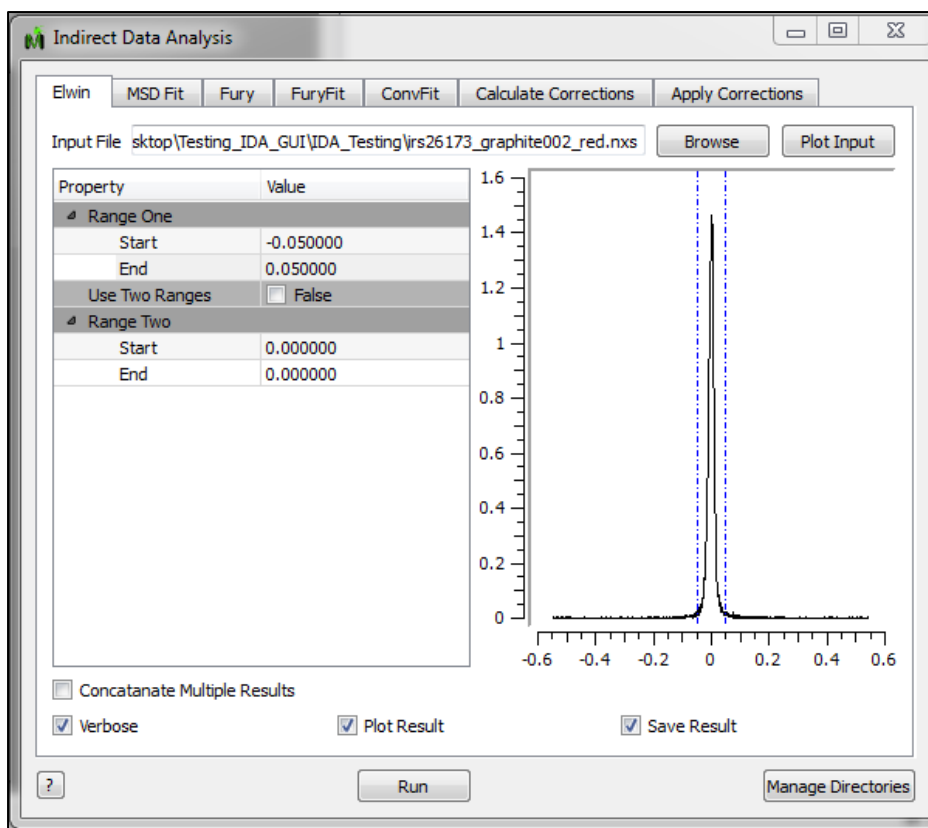


Testing Elwin

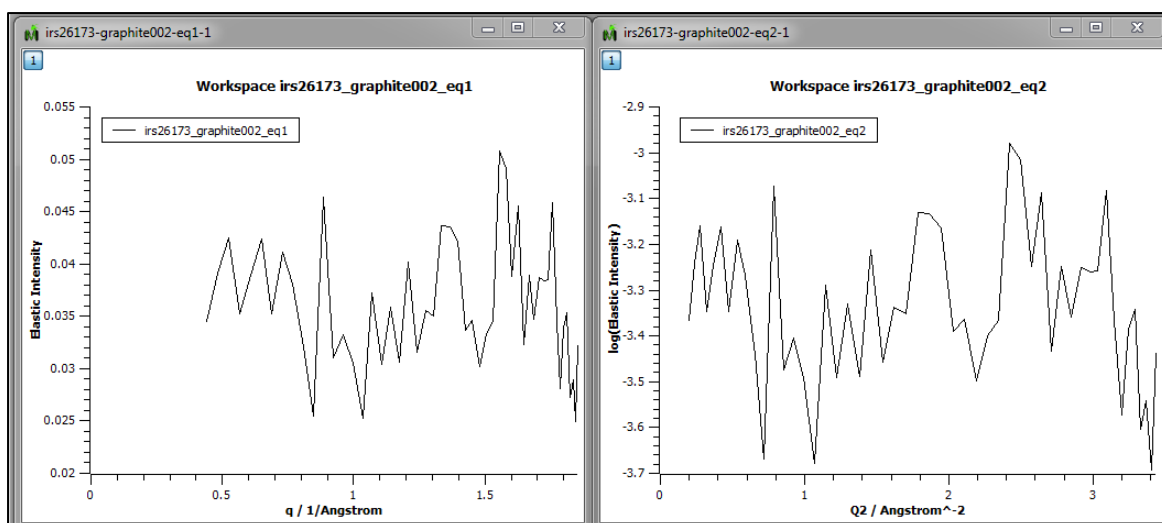
The Elwin tab operates on **_red** files; these are created when **.raw** files are processed in the **Convert To Energy** interface. Input **irs26173_graphite002_red.nxs** from the test folder and click the **Plot Input** button. The interface should look as follows:



It is best that the save directory is set to that of the test folder; this can be done through **Manage User Directories**. Change the start and end values in the **Range One** section to **-0.05** and **0.05** respectively, place a check in the **Plot Result** and **Save Result** checkboxes and click **Run**:

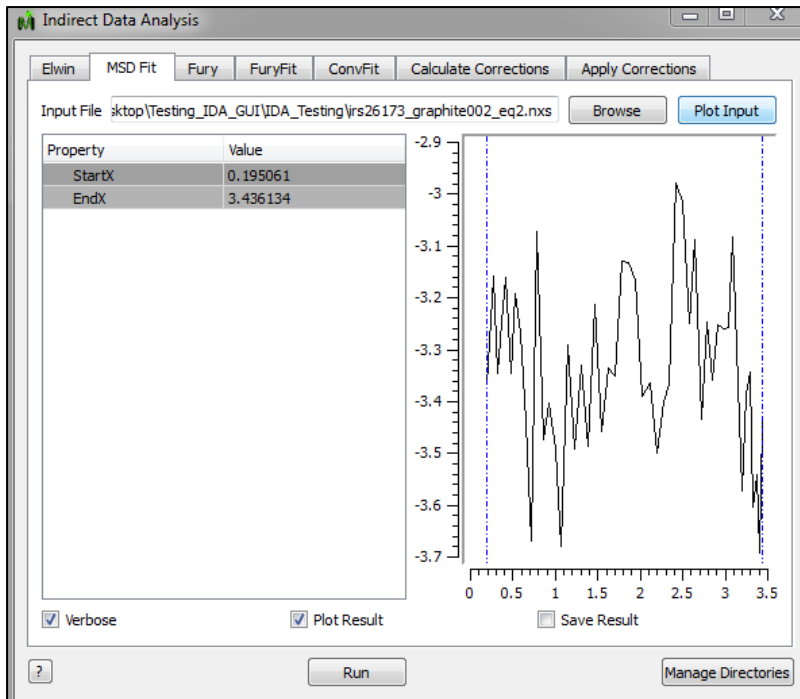


This generates three new workspaces, with *_elw*, *_eq1*, and *_eq2* as their suffixes. Two of them, *_eq1* and *_eq2*, are plotted:

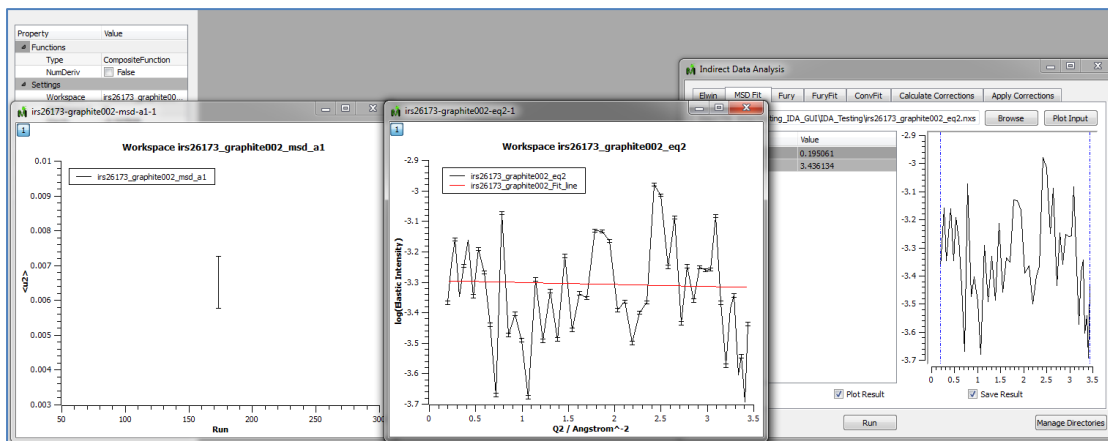


Testing MSDFit

The MSDFit tab operates on the file with the suffix *_eq2.nxs* that has been created using the Elwin tab of this interface. Input *irs26173_graphite002_eq2.nxs* from the test folder and click the Plot Input button:



Place a check in the **Save Result** checkbox and click **Run**:



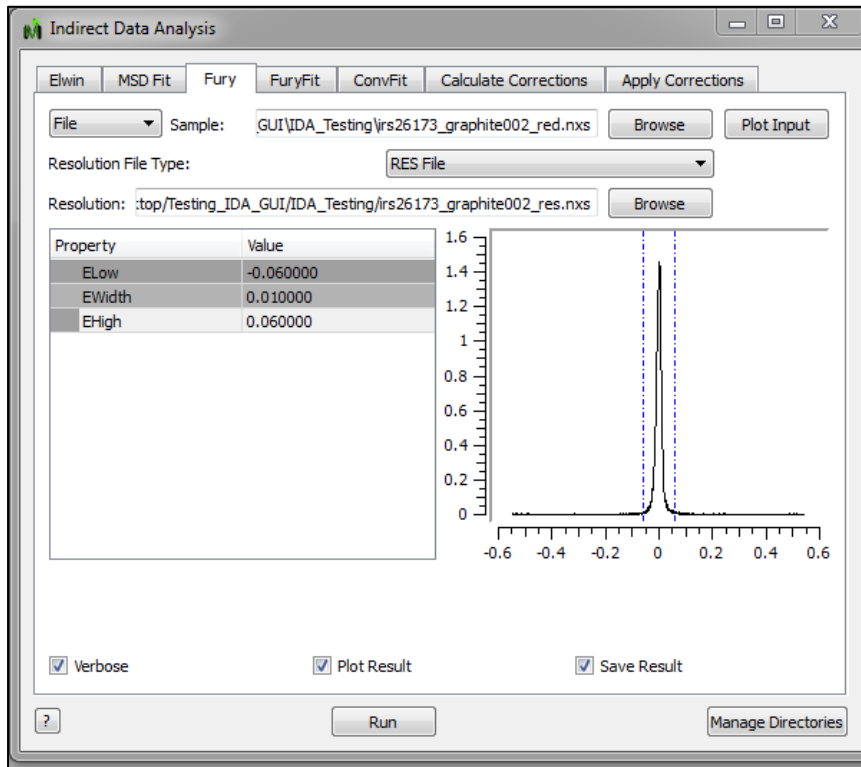
Testing Fury

The Fury tab operates on the original **_red** and the **_res** file created in **Convert To Energy** -> **Calibration** using the following values:

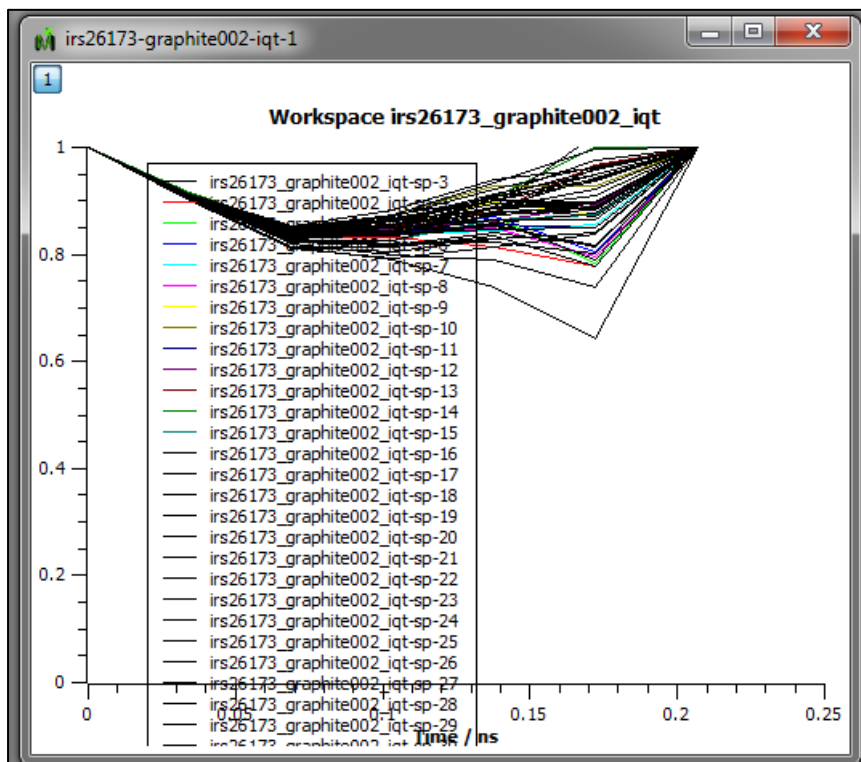
Run No	DA_Testing\IRS26173.raw	Browse
Property	Value	
Peak Min	62500.00	
Peak Max	65000.00	
Back Min	59000.00	
Back Max	61500.00	

Property	Value
Spectra Min	3
Spectra Max	53
Background	
Start	-0.30
End	0.30
Rebinning	
Low	-0.200000
Width	0.002000
High	0.200000

In Fury, load **irs26173_graphite002_red.nxs** and **irs26173_graphite002_res.nxs**. Ensure that the **Plot Result** and **Save Result** checkboxes are ticked. Using the inputs shown, click **Run**:

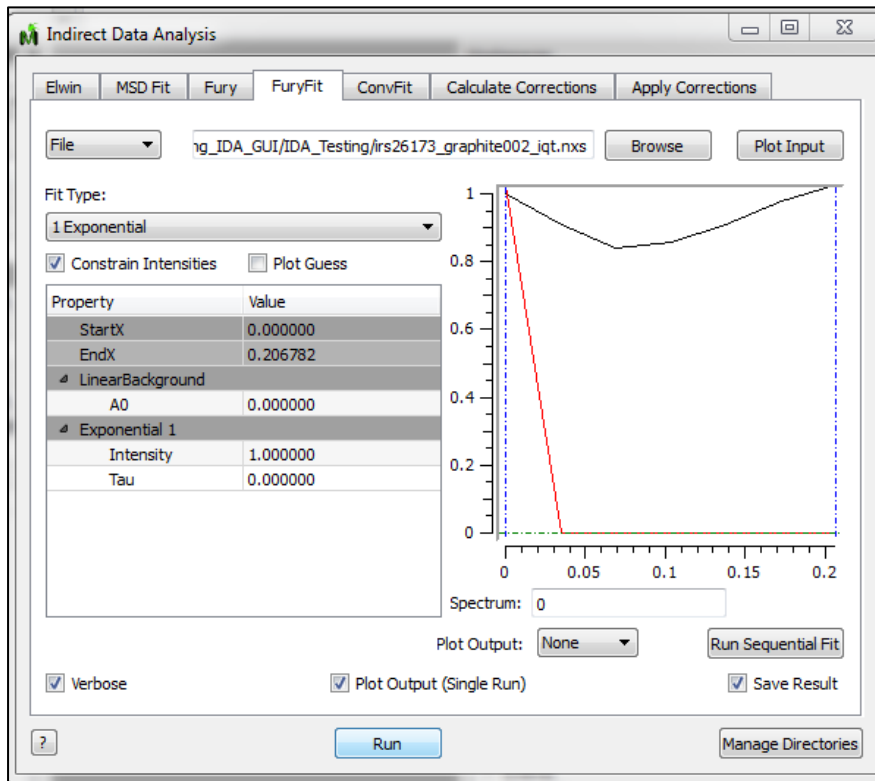


A file with the suffix ***_iqt.nxs*** is created:

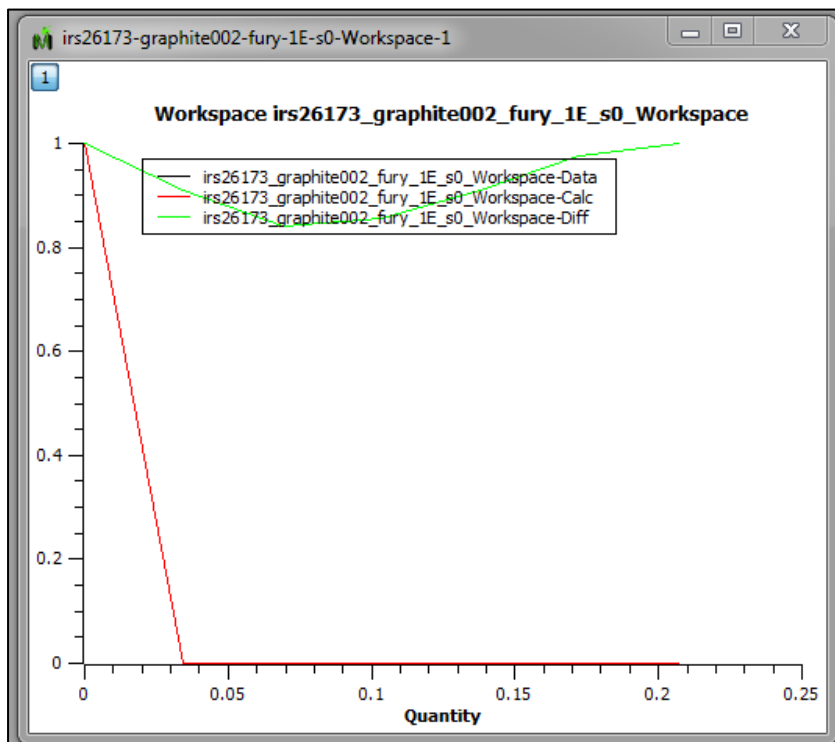


Testing FuryFit

This tab uses the *iq.t.nxs* file generated by the **Fury** tab as the only input. Use the file *irs26173_graphite002_iqt.nxs* and select **1 Exponential** as the **Fit Type**.

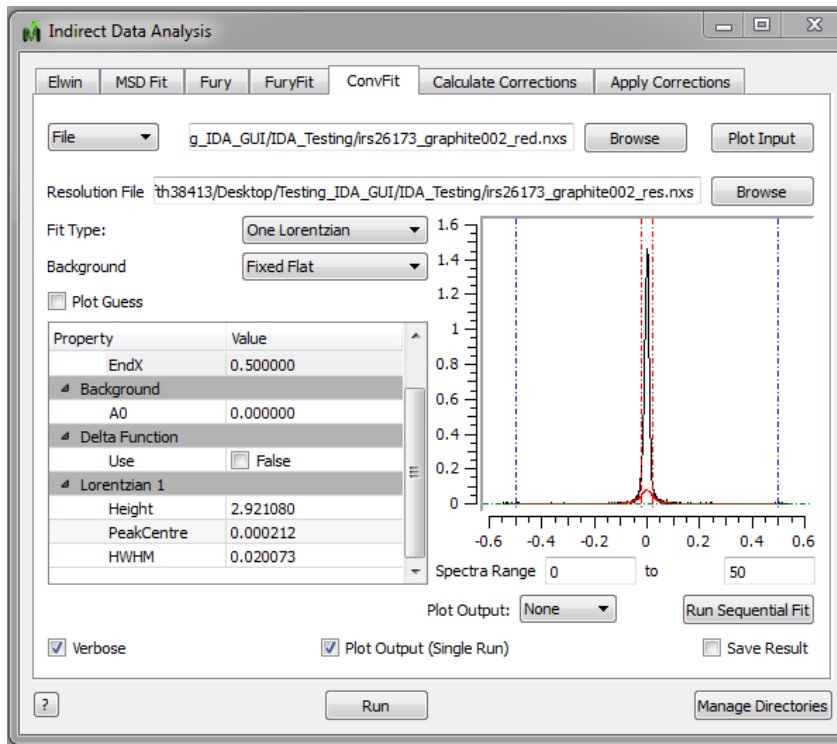


Place a tick in the **Plot Output (Single Run)** checkbox and click **Run**:

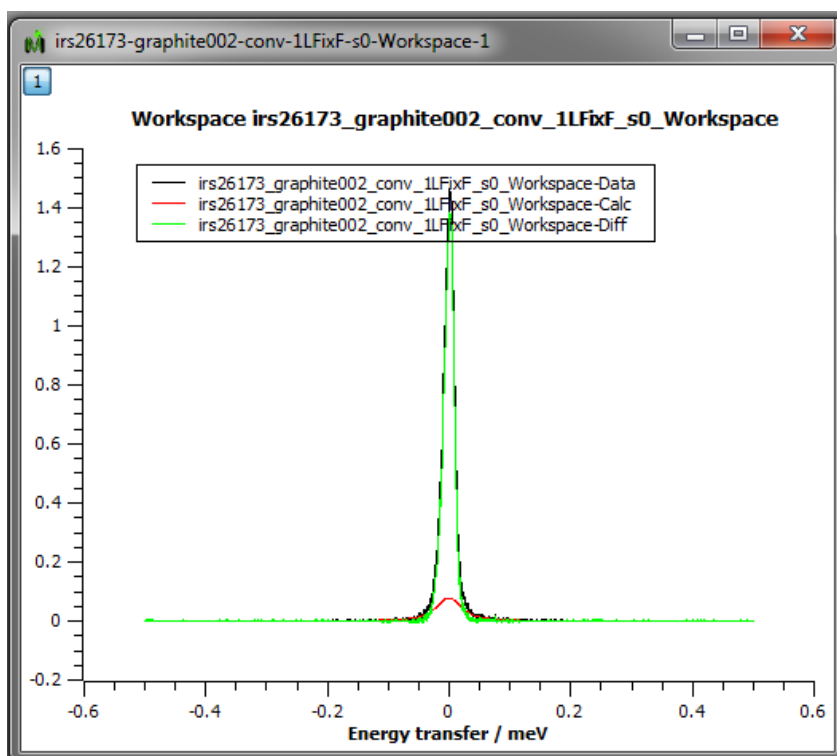


Testing ConvFit

This tab takes the original *_red.nxs* file – the one obtained in Convert To Energy -> Energy Transfer by operating on a *.raw* file – and a *_res.nxs* file as inputs.



Use *irs26173_graphite002_red.nxs*. Ensure the **Plot Output (Single Run)** checkbox is ticked then click **Run**:

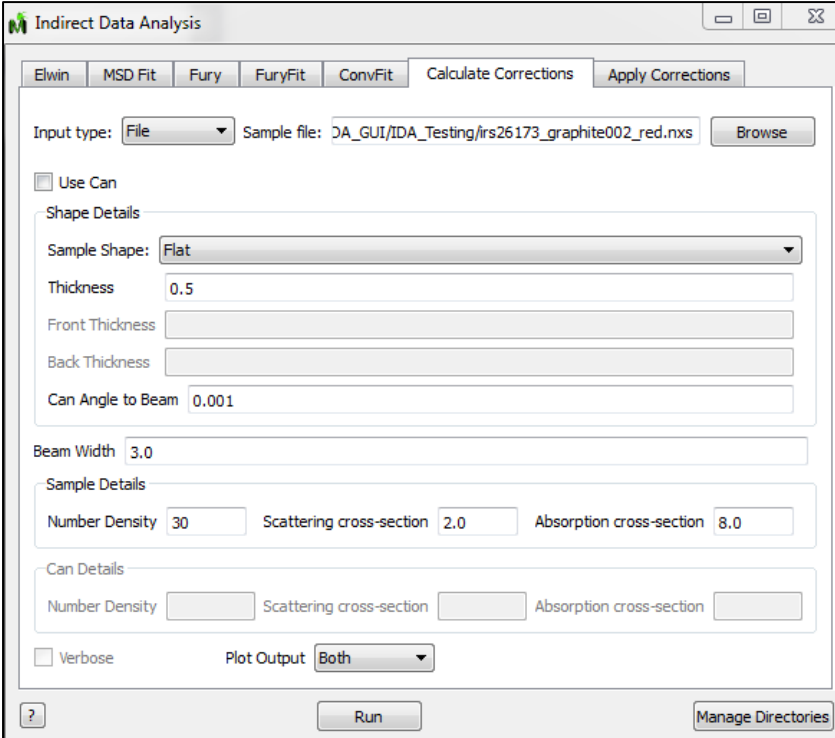


Testing Calculate Corrections

This tab takes *_red.nxs* files as its only input. Use *irs26173_graphite002_red.nxs* and *irs26173_graphite002_red.nxs*.

Sample Shape = Flat

To test for when the **Sample Shape** is **Flat**, use the following inputs:

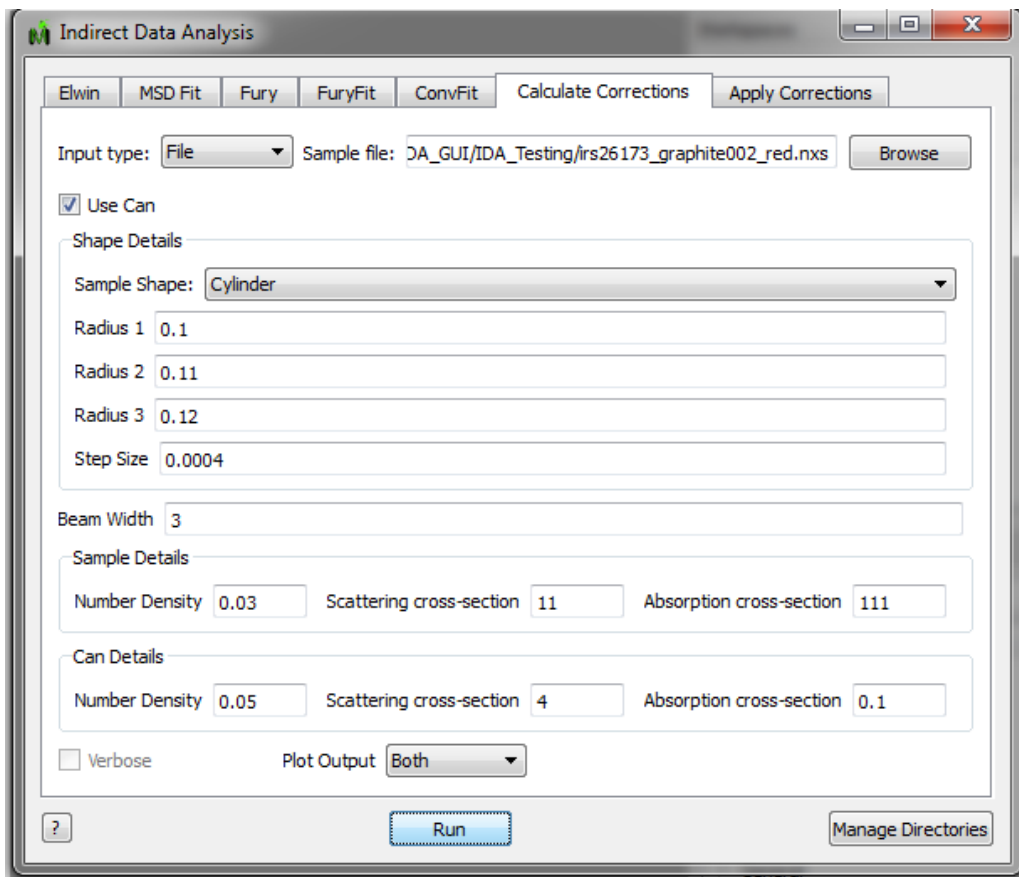


The screenshot shows the 'Indirect Data Analysis' software window with the 'Calculate Corrections' tab selected. The interface includes a menu bar with options: Elwin, MSD Fit, Fury, FuryFit, ConvFit, Calculate Corrections, and Apply Corrections. Below the menu bar, there is an 'Input type:' dropdown set to 'File' and a 'Sample file:' field containing the path 'DA_GUI/IDA_Testing/irs26173_graphite002_red.nxs' with a 'Browse' button. A 'Use Can' checkbox is present and unchecked. The 'Shape Details' section contains a 'Sample Shape' dropdown menu set to 'Flat', a 'Thickness' input field with the value '0.5', and empty input fields for 'Front Thickness' and 'Back Thickness'. A 'Can Angle to Beam' input field has the value '0.001'. The 'Beam Width' input field has the value '3.0'. The 'Sample Details' section has input fields for 'Number Density' (30), 'Scattering cross-section' (2.0), and 'Absorption cross-section' (8.0). The 'Can Details' section has empty input fields for 'Number Density', 'Scattering cross-section', and 'Absorption cross-section'. At the bottom, there is a 'Verbose' checkbox (unchecked) and a 'Plot Output' dropdown menu set to 'Both'. A 'Run' button and a 'Manage Directories' button are located at the bottom right of the window.

When you click **Run**, an *_flt_Abs.nxs* file is created and saved in your directory; its intended purpose is for use within the **Apply Corrections** tab.

Sample Shape = Cylinder

To test for when the **Sample Shape** is **Cylinder**, use the following inputs on *irs26173_graphite002_red.nxs* and *irs26176_graphite002_red*:

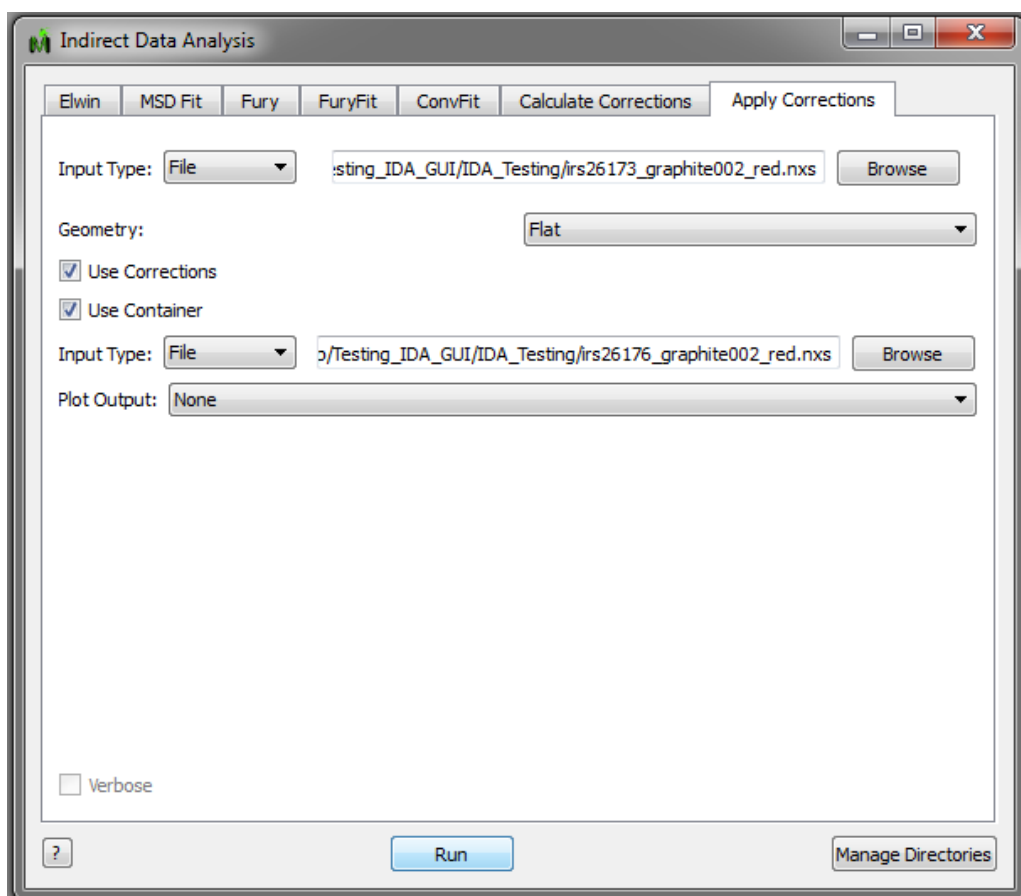


When you click **Run**, an ***_cyl_Abs.nxs*** file is created and saved in your directory; its intended purpose is for use within the **Apply Corrections** tab.

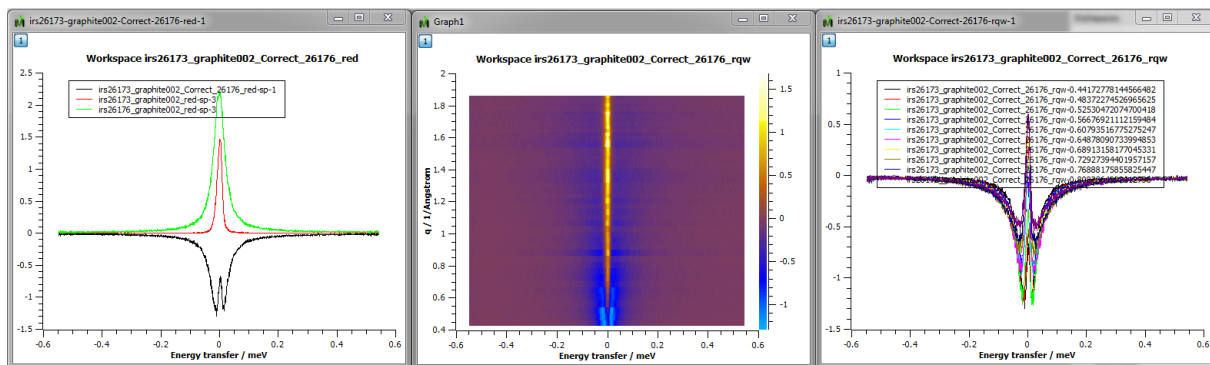
Testing Apply Corrections

This tab takes two *_red.nxs* files as its two inputs. Prior to using *irs26173_graphite002_red.nxs* and *irs26176_graphite002_red* (it should be in the test folder), use the **Calculate Corrections** tab to generate their corresponding *_flt_Abs* or *_cyl_Abs* files for when the **Sample Shape** is **Flat** or **Cylinder** respectively.

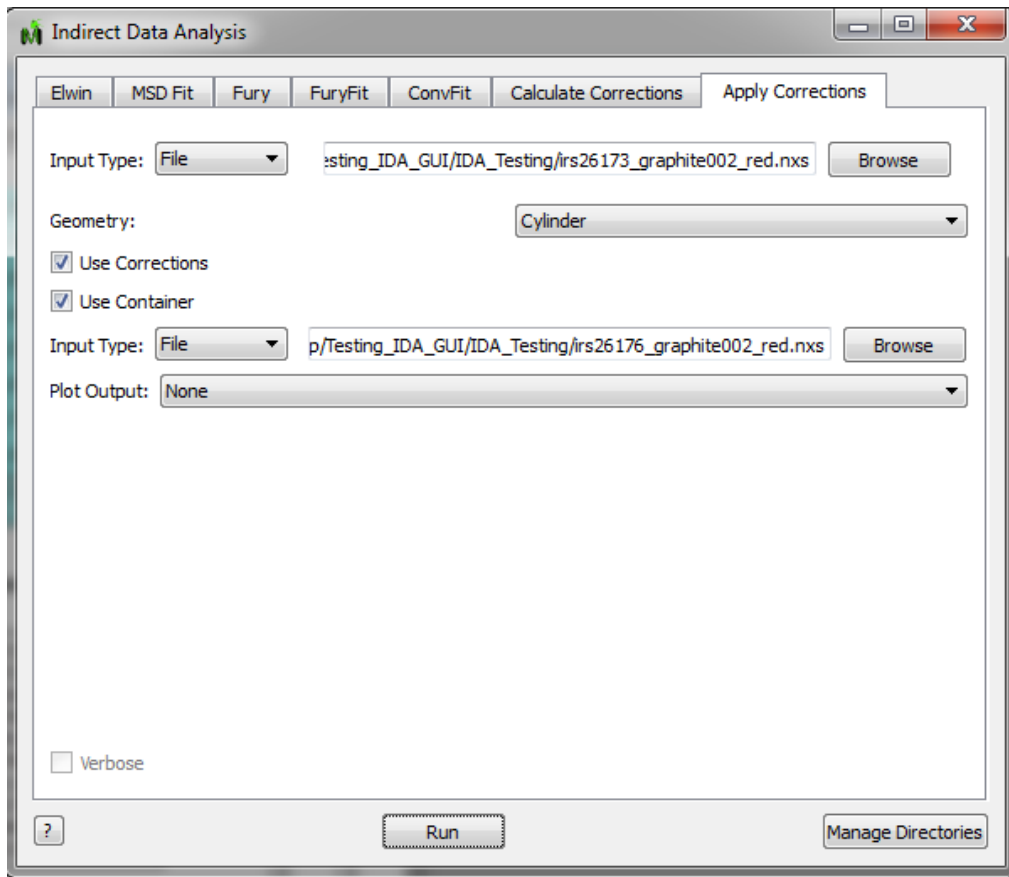
When **Flat**:



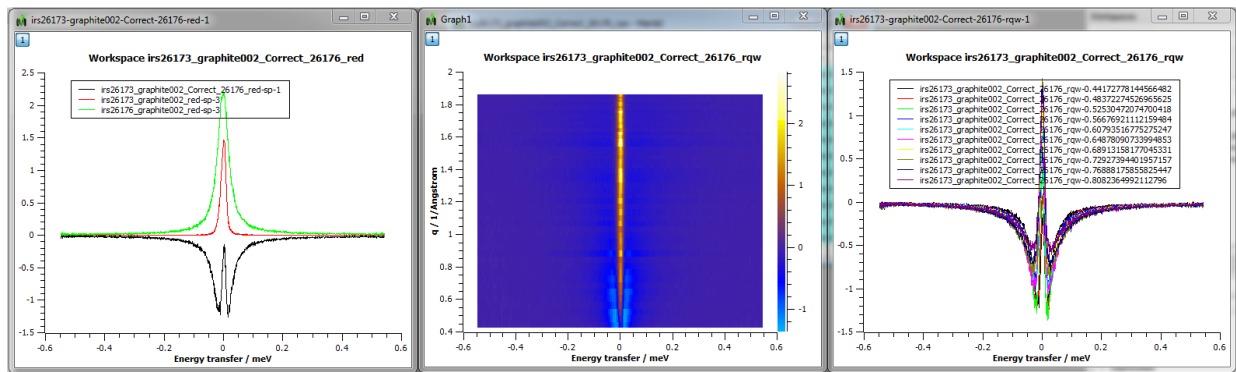
When **Run** is clicked:



When **Cylinder**:



When **Run** is clicked:



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