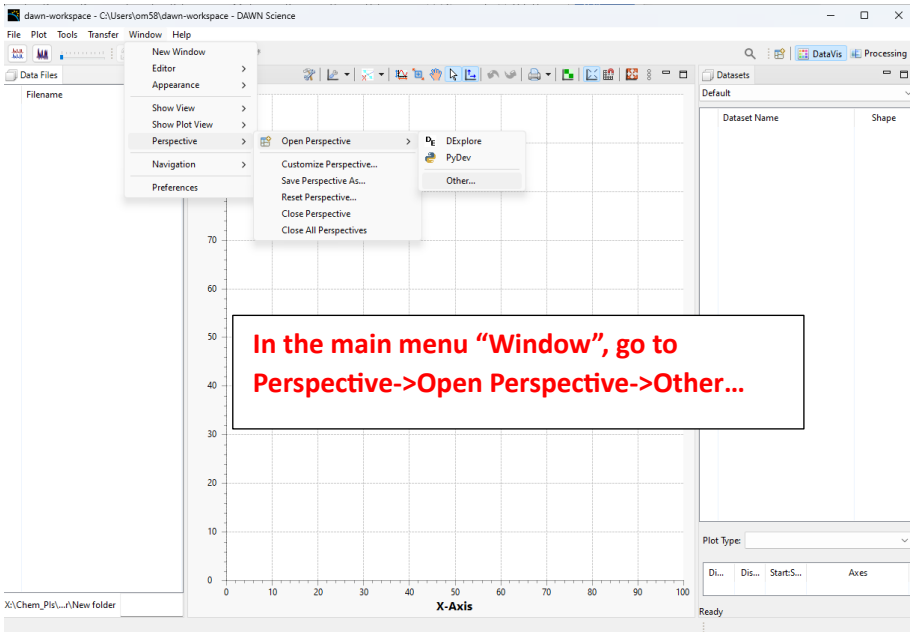
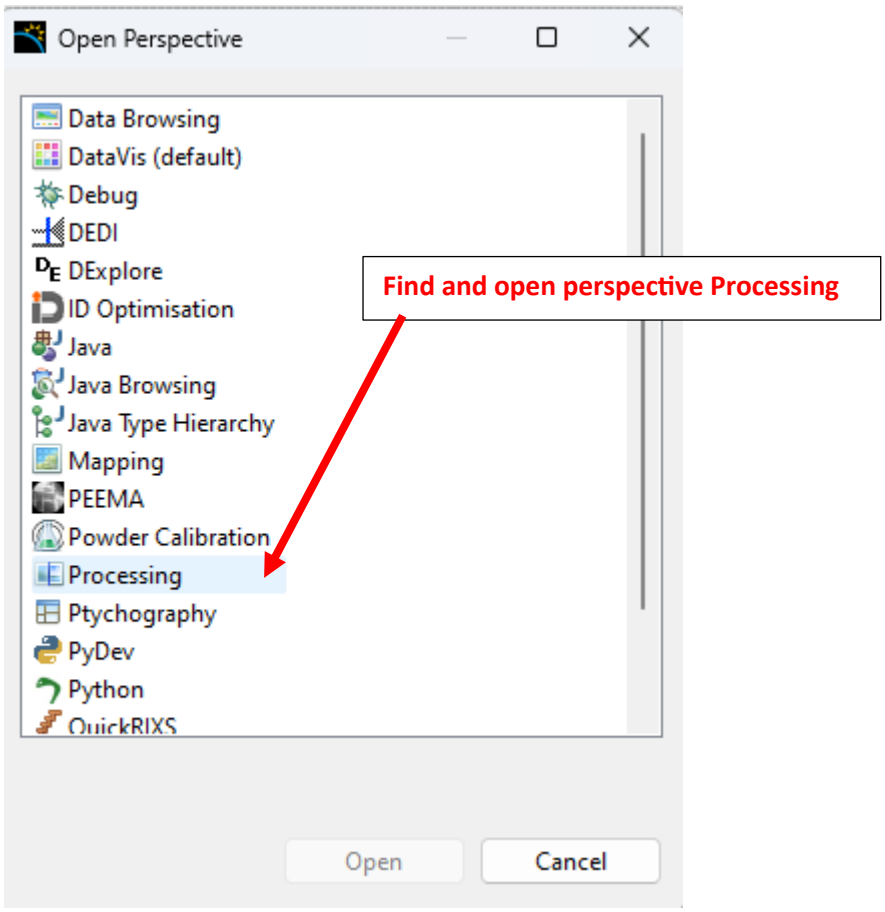
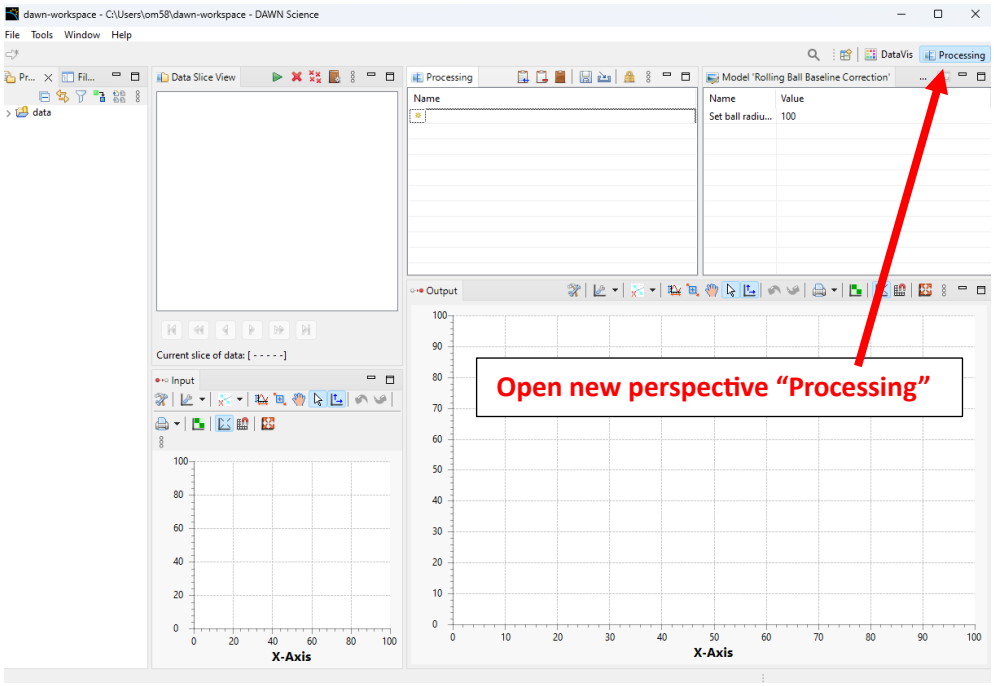
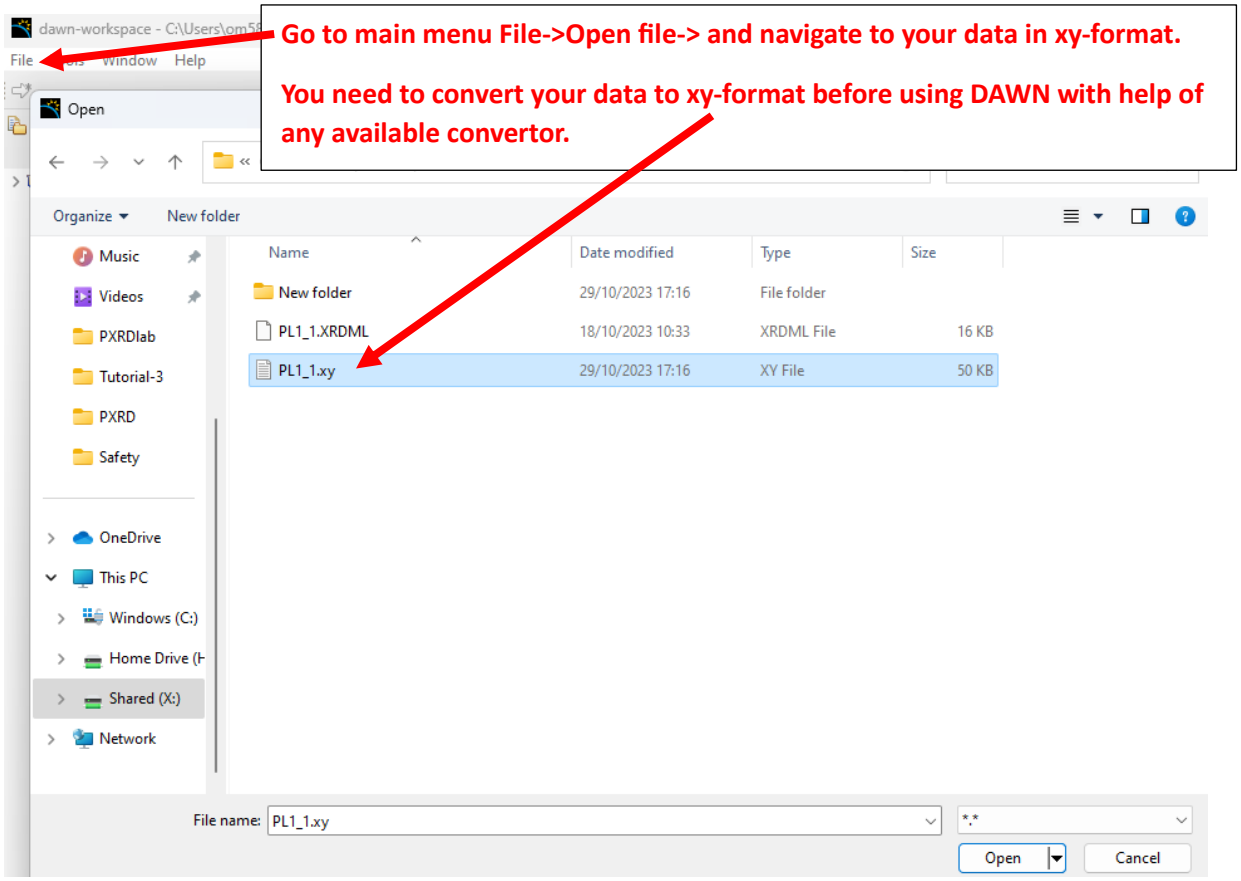
Download relevant version of free software DAWN and install it on C-drive of your computer, not on home drive or OneDrive.

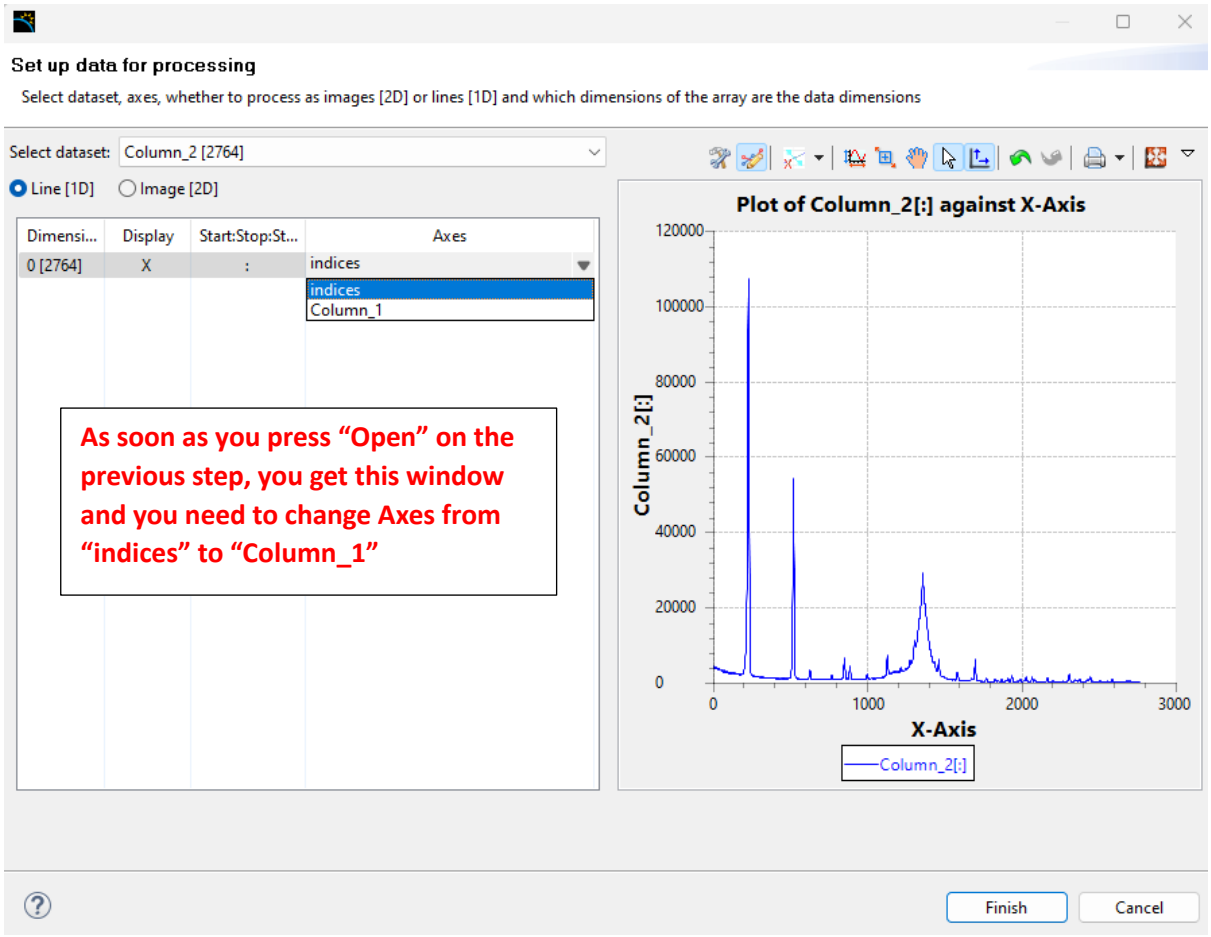
https://dawnsci.org/downloads/

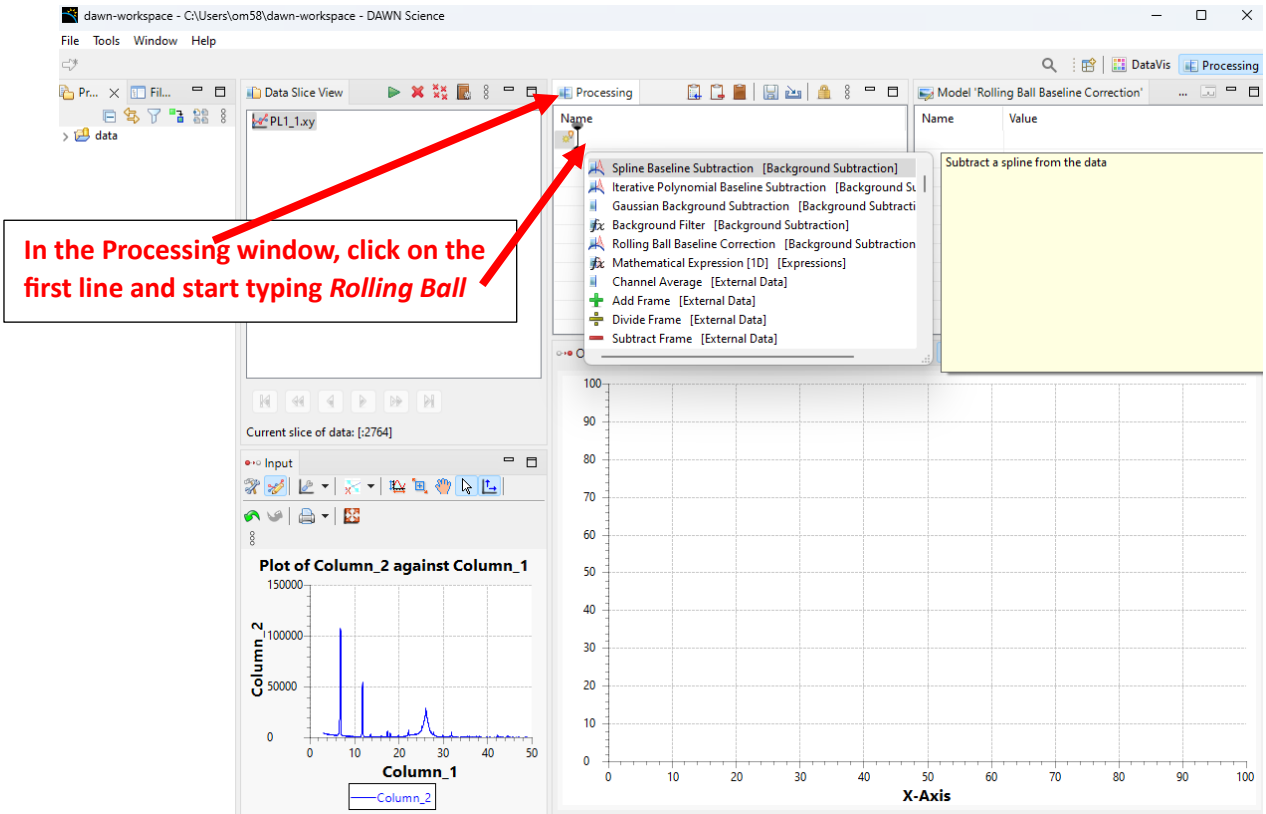


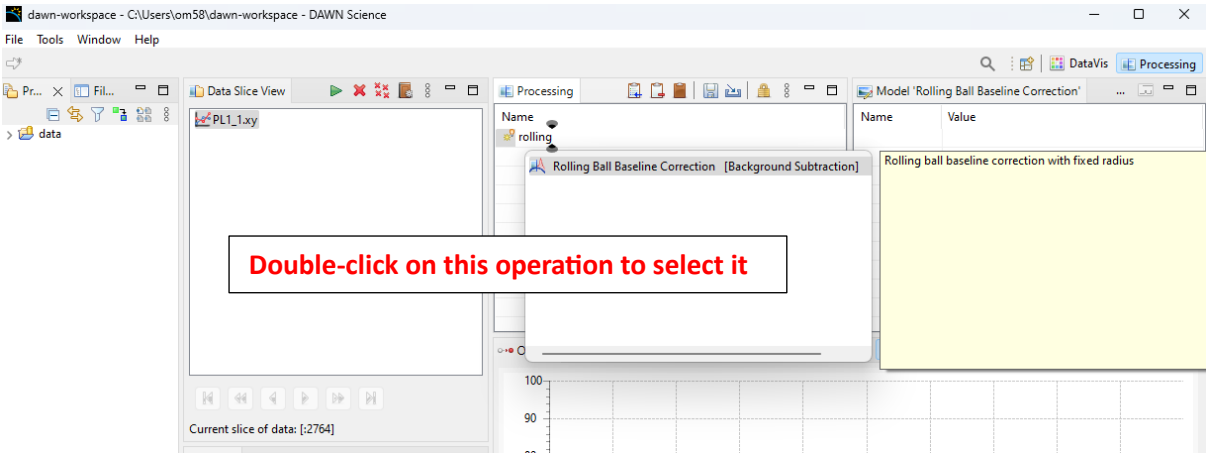


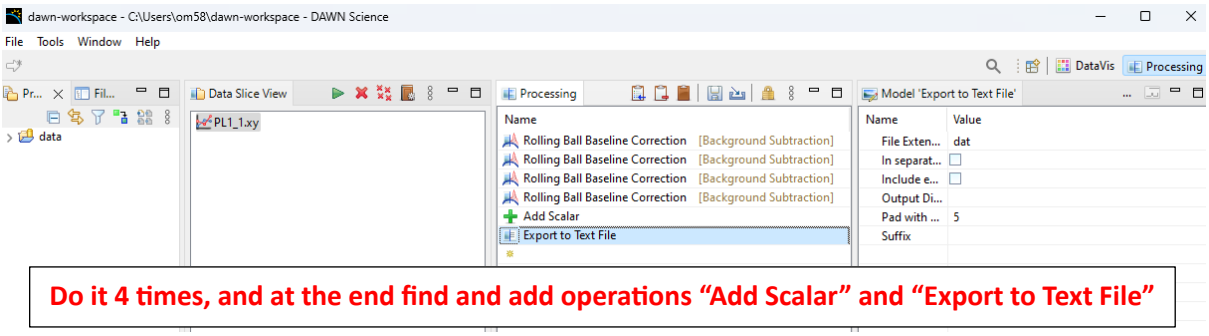

Open new perspective “Processing”
X-Axis
X-Axis

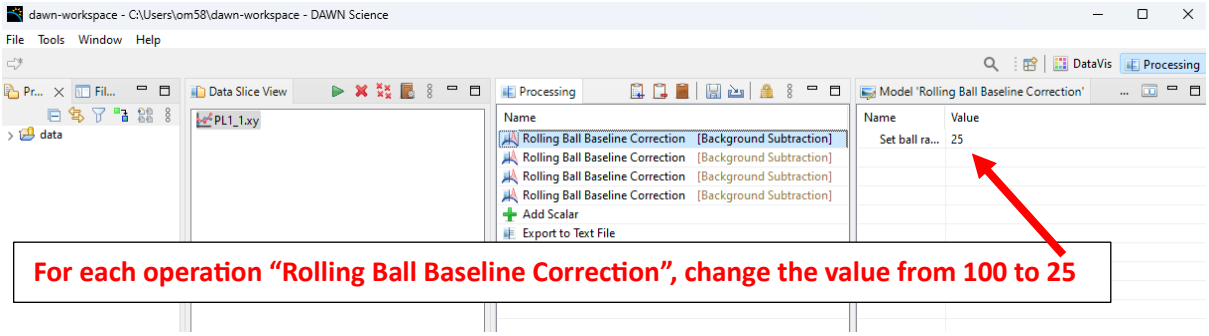

Go to main menu File->Open file-> and navigate to your data in xy-format.
You need to convert your data to xy-format before using DAWN with help of any available convertor.
Open
Organize
New folder
Name
Date modified
Type
Size
New folder
29/10/2023 17:16
File folder
PL1_1.XRDML
18/10/2023 10:33
XRDML File
16 KB
PL1_1.xy
29/10/2023 17:16
XY File
50 KB
File name: PL1_1.xy
Open
Cancel

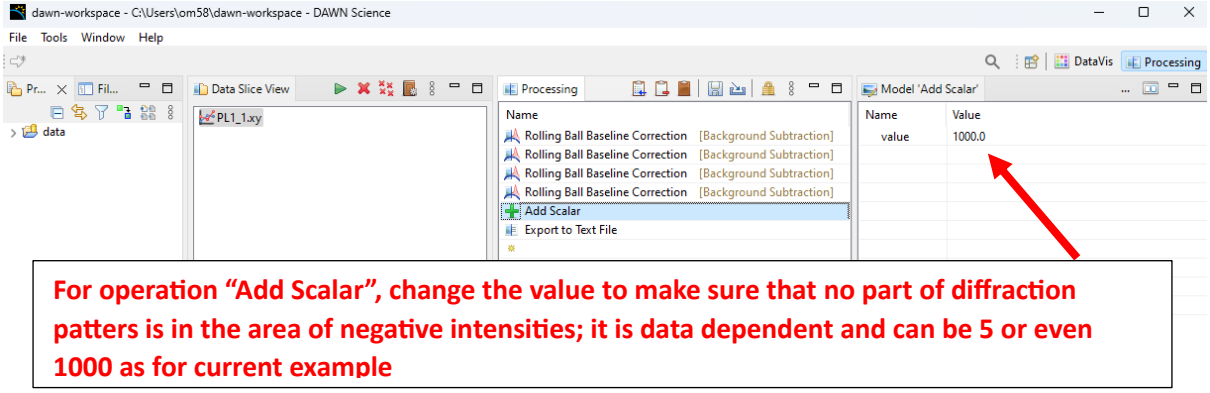

Set up data for processing
Select dataset, axes, whether to process as images [2D] or lines [1D] and which dimensions of the array are the data dimensions
Select dataset: Column_2 [2764]
Line [1D]
Image [2D]
Dimensi...
Display
Start:Stop:St...
Axes
0 [2764]
X
:
indices
indices
Column_1
As soon as you press “Open” on the previous step, you get this window and you need to change Axes from “indices” to “Column_1”
Plot of Column_2[:] against X-Axis
Column_2[:]
X-Axis
Column_2[:]
Finish
Cancel

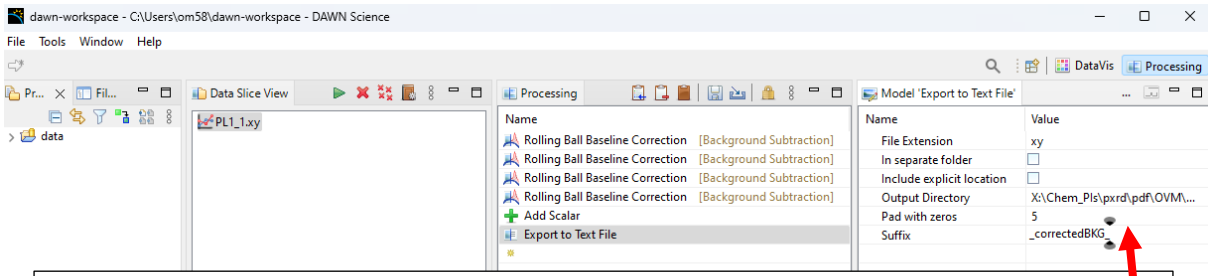

dawn-workspace - C:\Users\om58\dawn-workspace - DAWN Science
File
Tools
Window
Help
DataVis
Processing
Data Slice View
PL1_1.xy
Current slice of data: [:2764]
Processing
Name
Model 'Rolling Ball Baseline Correction'
Name
Value
Subtract a spline from the data
Spline Baseline Subtraction [Background Subtraction]
Iterative Polynomial Baseline Subtraction [Background Su
Gaussian Background Subtraction [Background Subtracti
Background Filter [Background Subtraction]
Rolling Ball Baseline Correction [Background Subtraction
Mathematical Expression [1D] [Expressions]
Channel Average [External Data]
Add Frame [External Data]
Divide Frame [External Data]
Subtract Frame [External Data]
In the Processing window, click on the first line and start typing Rolling Ball
Input
Plot of Column_2 against Column_1
Column_2
Column_1
Column_2
X-Axis


dawn-workspace - C:\Users\om58\dawn-workspace - DAWN Science
File Tools Window Help
DataVis
Processing
Data Slice View
PL1_1.xy
data
Processing
Name
rolling
Rolling Ball Baseline Correction [Background Subtraction]
Model 'Rolling Ball Baseline Correction'
Name
Value
Rolling ball baseline correction with fixed radius
Double-click on this operation to select it
Current slice of data: [:2764]
100
90

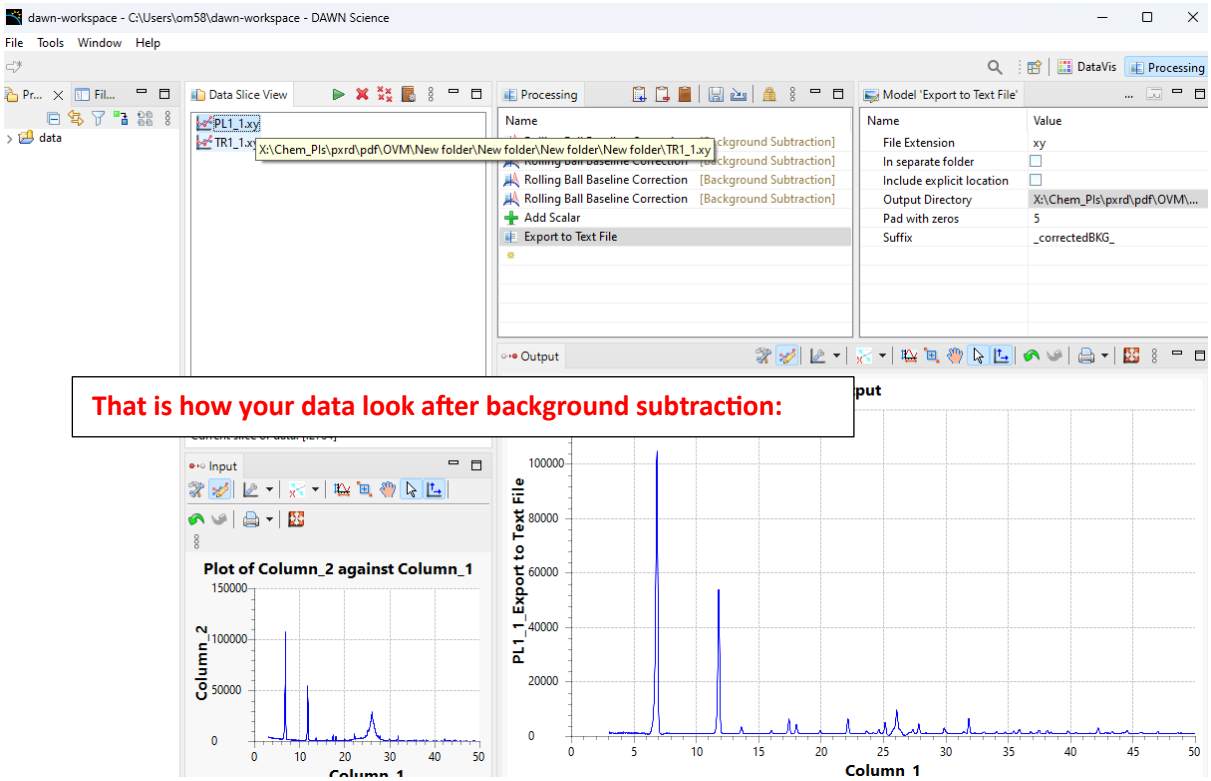

dawn-workspace - C:\Users\om58\dawn-workspace - DAWN Science
File Tools Window Help
DataVis
Processing
Data Slice View
PL1_1.xy
data
Processing
Name
Rolling Ball Baseline Correction [Background Subtraction]
Rolling Ball Baseline Correction [Background Subtraction]
Rolling Ball Baseline Correction [Background Subtraction]
Rolling Ball Baseline Correction [Background Subtraction]
Add Scalar
Export to Text File
Model 'Export to Text File'
Name
Value
File Exten...
dat
In separat...
Include e...
Output Di...
Pad with ...
5
Suffix
Do it 4 times, and at the end find and add operations “Add Scalar” and “Export to Text File”


dawn-workspace - C:\Users\om58\dawn-workspace - DAWN Science
File Tools Window Help
DataVis
Processing
Data Slice View
PL1_1.xy
data
Processing
Name
Rolling Ball Baseline Correction [Background Subtraction]
Rolling Ball Baseline Correction [Background Subtraction]
Rolling Ball Baseline Correction [Background Subtraction]
Rolling Ball Baseline Correction [Background Subtraction]
Add Scalar
Export to Text File
Model 'Rolling Ball Baseline Correction'
Name
Value
Set ball ra...
25
For each operation “Rolling Ball Baseline Correction”, change the value from 100 to 25

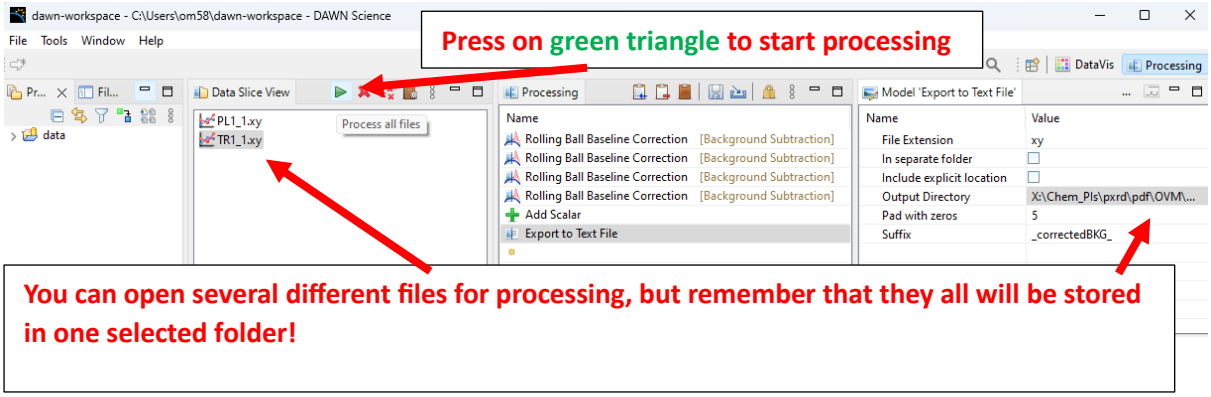

dawn-workspace - C:\Users\om58\dawn-workspace - DAWN Science
File Tools Window Help
DataVis
Processing
Data Slice View
PL1_1.xy
data
Processing
Name
Rolling Ball Baseline Correction [Background Subtraction]
Rolling Ball Baseline Correction [Background Subtraction]
Rolling Ball Baseline Correction [Background Subtraction]
Rolling Ball Baseline Correction [Background Subtraction]
Add Scalar
Export to Text File
Model 'Add Scalar'
Name
Value
value
1000.0
For operation “Add Scalar”, change the value to make sure that no part of diffraction patters is in the area of negative intensities; it is data dependent and can be 5 or even 1000 as for current example



For operation “Export to Text File”, change values to make sure that you find your file in the folder where you would like to find it and with extension *.xy

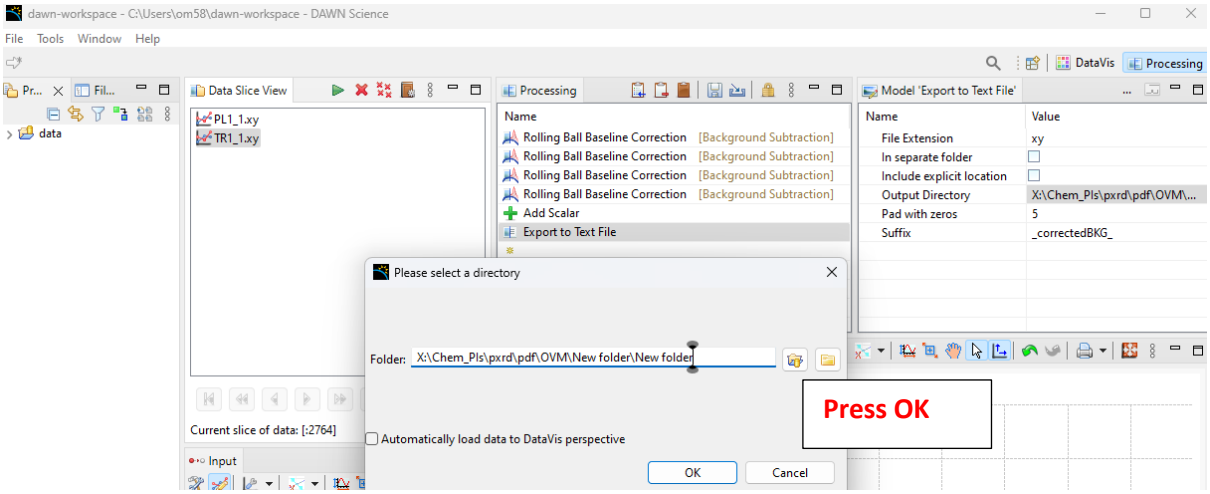


That is how your data look after background subtraction:



Press on green triangle to start processing

You can open several different files for processing, but remember that they all will be stored in one selected folder!



PL1_1__correctedBKG__00000.xy

PL1_1_processed_231031_182017.nxs

TR1_1__correctedBKG__00000.xy

TR1_1_processed_231031_182022.nxs

<- Your data with corrected background are in selected folder, you can delete *.nxs files and use only *.xy files