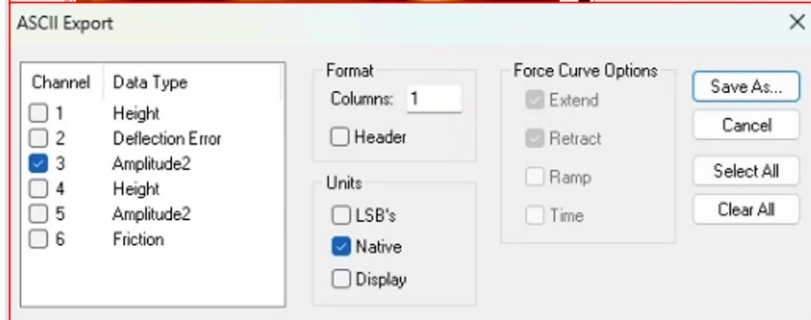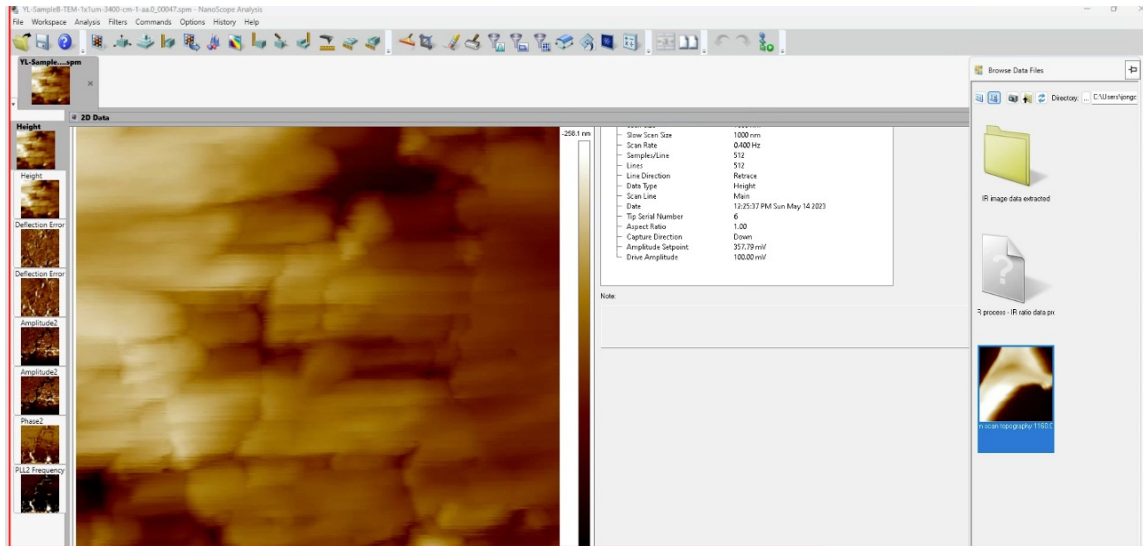# Mathematica code for AFM-IR Ratiomap (v2)
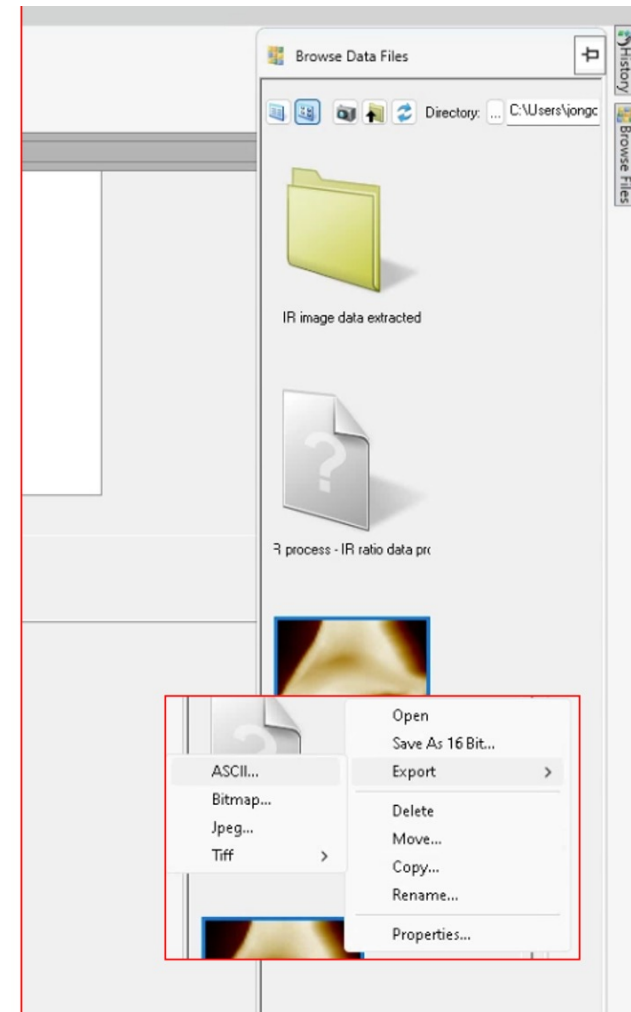
Contact: jongcheol1422@gmail.com
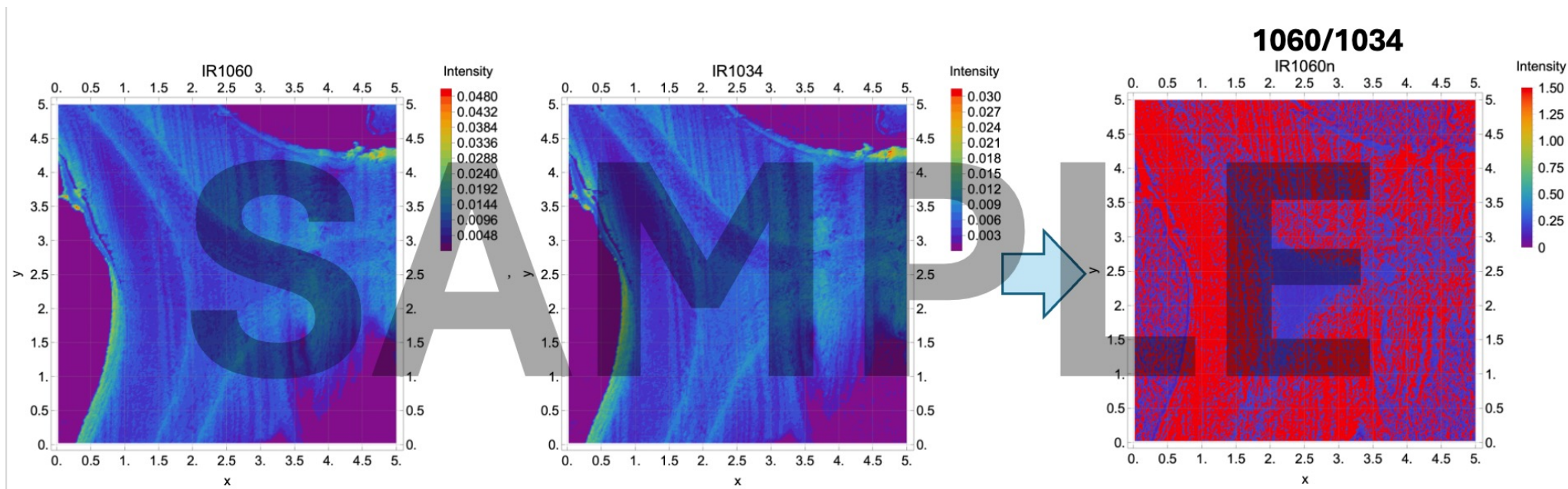
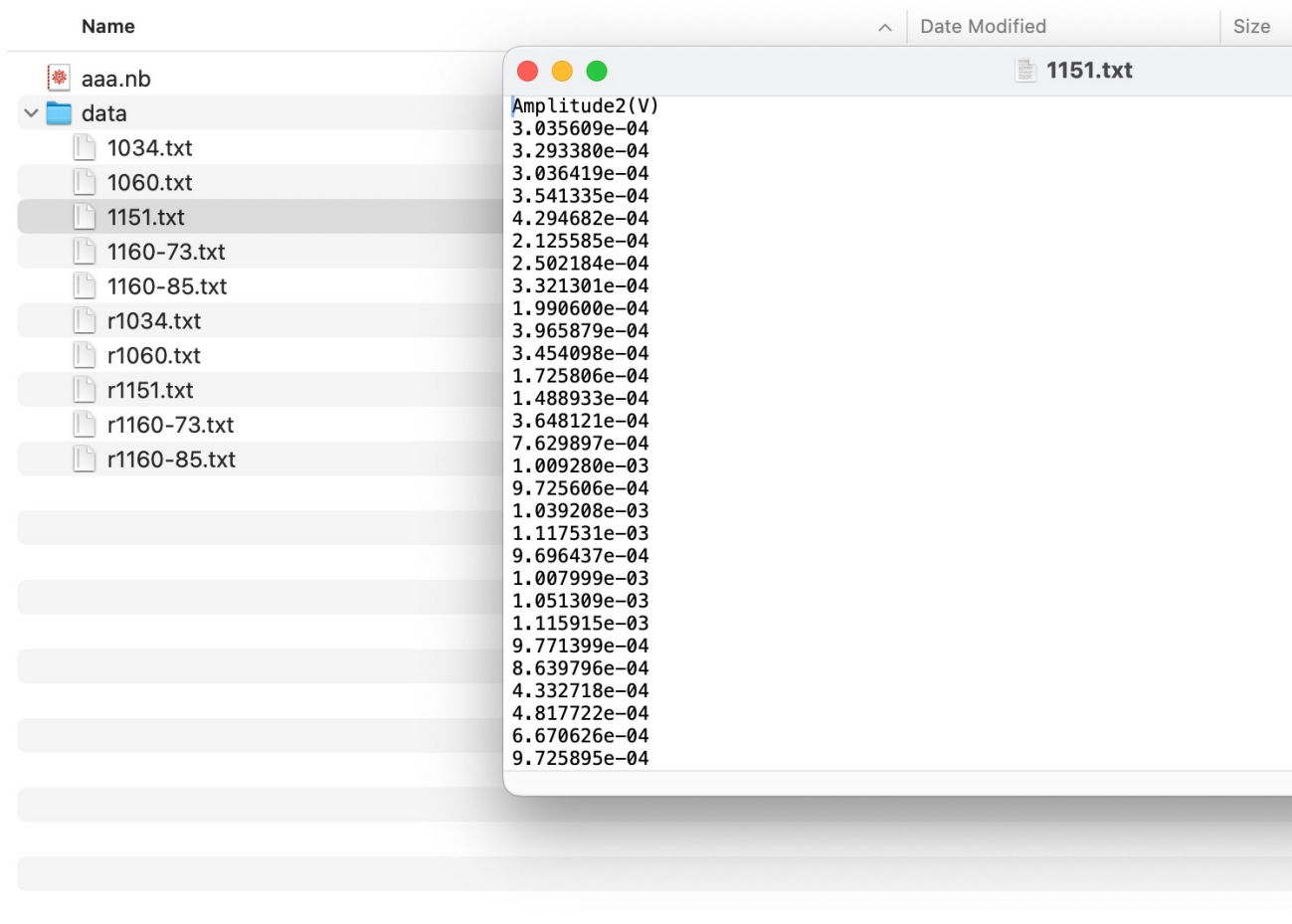# How to expoert Data from Bruker – Nanoscope software.

Native → raw data (for Amp2)
Display → numbers after process in Nanoscope (for height)
LSB → R

Check if the txt files are below. First line is the value name. spl x spl values are in one column. Ver. 2

Name		Date Modified	Size
✳ aaa.nb			
∨ 📁 data			
📄 1034.txt			
📄 1060.txt			
📄 1151.txt			
📄 1160-73.txt			
📄 1160-85.txt			
📄 r1034.txt			
📄 r1060.txt			
📄 r1151.txt			
📄 r1160-73.txt			
📄 r1160-85.txt			

1151.txt

```
Amplitude2(V)
3.035609e-04
3.293380e-04
3.036419e-04
3.541335e-04
4.294682e-04
2.125585e-04
2.502184e-04
3.321301e-04
1.990600e-04
3.965879e-04
3.454098e-04
1.725806e-04
1.488933e-04
3.648121e-04
7.629897e-04
1.009280e-03
9.725606e-04
1.039208e-03
1.117531e-03
9.696437e-04
1.007999e-03
1.051309e-03
1.115915e-03
9.771399e-04
8.639796e-04
4.332718e-04
4.817722e-04
6.670626e-04
9.725895e-04
```

Cells with light yellow background → You need to input proper numbers about your data information.

Explanations are in (*exp*)

```
In[62]:= $Version
         ClearAll["Global`*"]
         SetDirectory[NotebookDirectory[]]; (*Mathematica file in the proper location*)

Out[62]= 12.3.0 for Mac OS X x86 (64-bit) (May 10, 2021)
```

a. Data import and process �》

0. Data information

```
In[65]:= Lx = 5; (*um-scanned area *)
         Ly = 5; (*um-scanned area *)
         dim = 256; (*sample per line *)
         nx = dim;
         ny = dim;
```

1. Data import

```
In[70]:= allFiles = FileNames["*.txt", "sample data"]; (*import .txt files in the directory name 'data'*)
         allData = Import[#, "Data"] & /@ allFiles;
         allData // Dimensions (*Check how many .txt files were imported*)

Out[71]= {10, 65 537, 1}
```

```
In[72]:= allData2 = Table[i, {i, 1, Length[allData]}];
         For[i = 1, i ≤ Length[allData],
           allData2〚i〛 = Drop[allData〚i〛, 1]; (*Drop the first line (names) *)
           i ++]
         allData // Dimensions
```