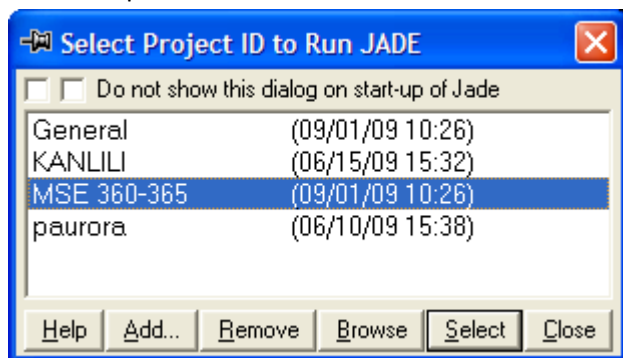



# Using JADE 9

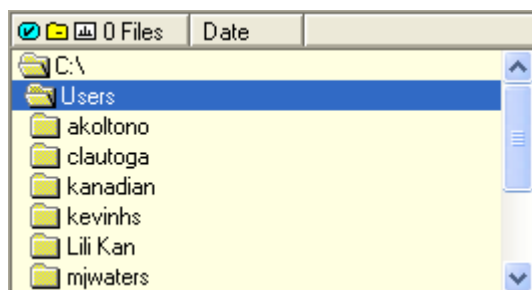
MSE 360 - Fall 2009


Revised: 9/2/2009

- 1) Open JADE 9 from the desktop
- 2) The main JADE window will open along with the "Select Project ID to Run JADE" window. Highlight the "MSE 360-365" profile and click "select."



- 3) On the upper left panel click the small folder icon  to show the file tree. Find the folder containing your data from the XRD.

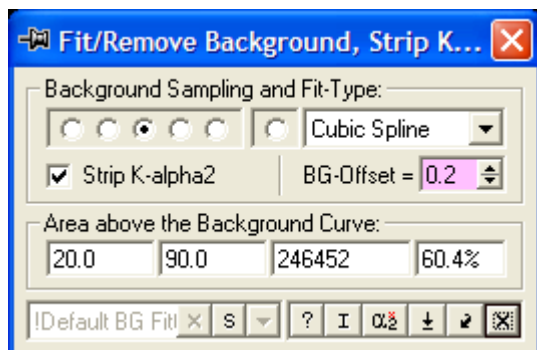


Once you have found your folder, you need to press the small folder icon  again to close the folder tree, exposing the files present in your folder. Double click a file to open it. You are now ready to analyze your data.

- 4) Remove background fluorescence:

Analyze → Fit Background (F4)


This window presents a number of options for fitting the background noise. Play with the values until you are comfortable with the fit.

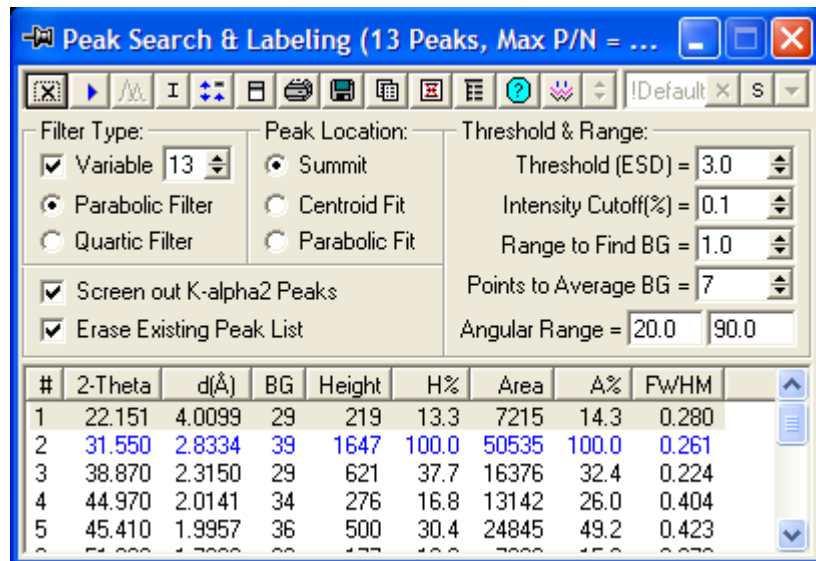


Click the down arrow button  to remove the background.

5) Find the peaks:

Analyze → Find Peaks (F2)


Again this window presents a large number of options for peak finding that we are generally not concerned with for our samples. Click the “Find peaks in primary pattern” button .



The screenshot shows the 'Peak Search & Labeling' window with the following settings:


- Filter Type:  Variable (13)
- Peak Location:  Summit
- Threshold & Range: Threshold (ESD) = 3.0, Intensity Cutoff(%) = 0.1, Range to Find BG = 1.0, Points to Average BG = 7, Angular Range = 20.0 to 90.0
- Parabolic Filter
- Quartic Filter
- Screen out K-alpha2 Peaks
- Erase Existing Peak List

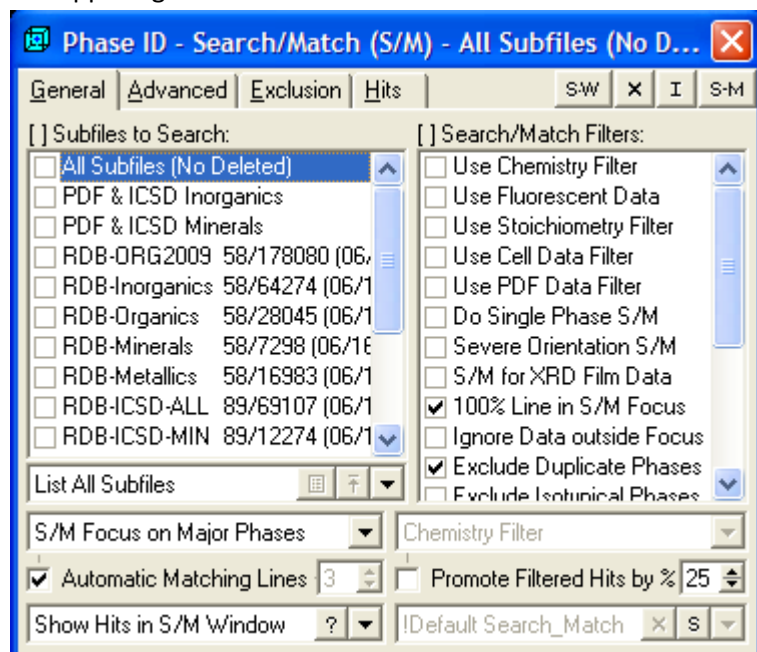
#	2-Theta	d(Å)	BG	Height	H%	Area	A%	FWHM
1	22.151	4.0099	29	219	13.3	7215	14.3	0.280
2	31.550	2.8334	39	1647	100.0	50535	100.0	0.261
3	38.870	2.3150	29	621	37.7	16376	32.4	0.224
4	44.970	2.0141	34	276	16.8	13142	26.0	0.404
5	45.410	1.9957	36	500	30.4	24845	49.2	0.423

Look over the results. If there are peaks missing or extra peaks you don't want, use the “Peak editing cursor” tool .

6) Compare the peaks against the materials library:

Identify → Search/Match Setup (F7)



On the left hand side of the Search and Match window highlight or check the line that says “All subfiles.” You should not need to change any of the other options on this window. Click the Search and Match  button on the upper right.

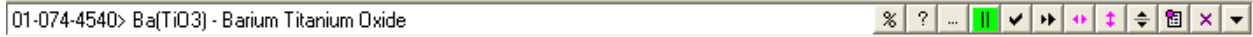


The screenshot shows the 'Phase ID - Search/Match (S/M) - All Subfiles' window with the following settings:

- Subfiles to Search:  All Subfiles (No Deleted)
- Search/Match Filters:  100% Line in S/M Focus,  Exclude Duplicate Phases
- S/M Focus on Major Phases: [Dropdown]
- Chemistry Filter: [Dropdown]
- Automatic Matching Lines: 3
- Promote Filtered Hits by %: 25
- Show Hits in S/M Window: [Dropdown]

7) Look over the materials that are suggested and decide which fit is best. Any suggestion with a FOM (figure of merit) < 10 is a likely possibility; however you will need to decide for yourself which fit is most appropriate. Check off the box next to the material(s) you have chosen and close the search window.

8) You may save the data corresponding to the materials you have chosen by selecting that material from the drop down box and clicking the view card button . You are then given the choice to save the data as a text file .



9) You may also want to save your diffraction data as a text file for entering into a spreadsheet later.  
File → Save → Primary Pattern as \*.txt

10) You may also save the diffraction data as an image file.  
File → Print Setup → click the save button