Tutorial session 3 examples

1. ADAS402 Test Case

1. Move to your directory */.../<uid>/adas/pass/* . Start ADAS402.
2. The Input window is different from the usual you have encountered so far.
3. In the top part of the screen you can choose a data set to interrogate directly. Try */.../adas/adf11/acd89/acd89_n.dat* for nitrogen.
4. Then try to lower screen search method. Select iso-nuclear master c-r class ACD. Then enter *96* as the year, *89* as the default year and *n* as the element. Select *Standard* for the type for master file. Click the *Search* button.
5. On the pop-up choose one of the files offered and click Select to return to the input screen.
6. On the processing screen you can make the usual choices of temperature and density pairs by default or using the editor.
7. Move on to the output screen and finally obtain the graph.
8. You may like to go into the data base and explore ADF11 a bit further. Also look at the ADAS User manual entry *appxa-11*.

1. ADAS405 Test Case

9. Move to your directory */.../<uid>/adas/scripts405/*. Check if you have files *NULL* and *iter_test_c*. If not, copy them both from */.../adas/adas/scripts405/*.
10. Move back to your */.../<uid>/adas/pass/* directory. Start ADAS and move to the ADAS4 series menu. Select ADAS405.
11. The Input window is complex. Note the Isonuclear Classes - click the *SELECT* button. On the drop down choice click on the buttons for *ACD, SCD, PRB, QCD, XCD, PLT*. then click *Done*.
12. Note the Select directory branch - click on the button and select *Central*.
13. Enter Year of data [96{return}]. Enter Default year *96*.
14. Enter Isonuclear element symbol *c*.
15. Note Type of master files - click on the button and select *Partial*. Note the Specify partial type code - click on the button and select *Resolved*.
16. Look at the lower section on the Line and Analysis Selection File. Click on the button for *User data*. Select the file NULL. Click *Done* to move to the processing window.
17. Click the *Default temperature/density* values button. You will need to choose an electron density, 1.00E9 say, and a hydrogen density, 1.00 say. Then click *Done* to move to the Output options window.
18. Click the button for *Graphical output*. Then click the button for *Fractional abundance plot*. Finally click *Done* to see the graph.
19. Click *Done* to return to the Output options screen. You can *Exit to menu* using the icon in this program.

2. ADAS 407 Test Case

1. Move back to your *pass* directory */.../<uid>/adas/pass*. Start ADAS407
2. The code can operate in interactive or automatic mode. On the Analysis Choice window select Interactive
3. The code works on the adf04 files for adjacent ionisation stages. These adf04 files must have recognizable Eissner configuration format. In practice this restricts you to */copmm#<nucchg>* libraries.
4. On the upper part of the Input screen select *copmm#54/ls#xe10.dat*. If a *copmm#<nucchg>* file is selcted then the adjacent ionised ion file is automatically selected in the lower part of the screen. Otherwise you must make an explicit choice.
5. On the upper left side of the Processing window, click Selections. You must choose the lowest level, that is the ground state. (ADAS407 has another mode for which additional metastable choices are required).
6. On the upper right side of the Processing window the same for the ionised ion.
7. On the Parameter Form section, select A for all items.
8. On the Matching Temperature part, select 2.420e+06.

9. Click on the select ionising ion ground state, just above the Selection button on the upper left side. This sets transitions in the lower right sub-window.
10. You assign a bundle index to each transition in turn in the lower right editable box. {Return} to record the value on the list. You can re-edit your choices.
11. Choose a Specific Line Index also and then click *Done*.
12. On the Output window, select the ATOMPARS Passing File and the usual paper.txt file.
13. Click *View graph*
14. Click *Done* and then on the Output window click *Output files and back to input*.
15. Exit and look at the ATOMPARS passing file.
16. Note the top line of the ATOMPARS passing file. There are two sets of ?? marks. Edit 10 into both these locations, that is the initial and final ion charge state – you have only done one stage so both are 10.

4. ADAS 408 Test Case

17. Move back to your *pass* directory */.../<uid>/adas/pass*. Start ADAS and move to the ADAS4 series menu. Select ADAS408.
18. Click on *Central Data*. Click on *atompars* in the selection window and then on *atompars_mm#c.dat*. This is and atomic parameter data set for carbon. Choose a filter if you wish.
19. Click *Done* to advance to the Processing options window.
20. Enter a *Title for Run* at the top of the window.
21. In the top left box, enter 12.0 for the *Impurity element isotopic mass* and 2.0 for the *Neutral hydrogen isotopic mass*.
22. In the lower left box for electron temperature, enter *Lower limit* 1.0, *Upper limit* 100.0, *No. of temps* 10.
23. In the lower right box for electron density, enter *Lower limit* 1.00e+10, *Upper limit* 1.00e+15, *No. of dens.* 11.
24. Click *Done* to advance to the Output window.
25. Enter 30 for the two-digit year number. Make sure there are no blanks. The Passing file template changes accordingly. It is editable.
26. Select *Text Output* and *Default File Name* and click *Done*.
27. Note the list of passing files which will be created is shown in an information widget. Click *OK* to accept the list.
28. Click on the *Escape to Menu* button to finish
29. Look at acd30#c.pass. Note that it is fully formed ADF11 unresolved type file.

3. Example 1

Repeat ADAS405, but this time select the file *iter_test_c*. Everything else is the same. You will see a line selection choice now on the processing options window. Select one of these. On the Output options window you should look at the other graphs.

5. Example 2

ADAS405 has a very wide scope. Feel free to try it. You will probably need to look at the manual to appreciate its full capabilities and the range of data which it can access.