Subject: MPFIT and initial Guesses
Posted by steve.kaeppler on Mon, 10 Mar 2014 16:32:35 GMT
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Hi All-

I have been trying to use the MPfunfit and MPfit function that I downloaded directly off Craig's UW-Madison website for idl. I am attempting to fit an accelerated Maxwellian to electron flux data that was obtained on a sounding rocket. I have gotten the function up and running correctly (I think), and it does produce a solution.

However, I have found that the resulting parameter estimates change depending upon the initial guesses put in. I have tried to implement doing a small grid search on one of the parameters and then using the lowest chi square value from that grid search as the initial guess. I know that Levenberg-Marquardt routines do not converge to a global solution, but I am concerned that there are multiple local solutions that produce similar values of chi-squared.

To that end, I am trying to track down whether I am properly implementing this function.

I have tried to manually play with setting various step sizes in the parameters. Is there a location within the code or a parameter I could set which would allow me to see what the step size is? I am concerned I am either setting the step sizes too large or too small.

A second question, which may be harder to answer, how close does the initial guess need to be to obtain a global minimum or something close? I suspect this has to do with how well defined the problem is.

Any help would be appreciated and please let me know if you would like me to post some code or results I am getting.

Thank you,
Steve