Subject: Re: mpfitfun.pro
Posted by Craig Markwardt on Mon, 15 Oct 2001 14:40:45 GMT
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fskhk@puknet.puk.ac.za (Helena Kruger) writes:
> I'm using Craig Markwardt's fitting routine MPFITFUN.PRO. I use an
> expression called the Dorman function, to fit the given data points.
> I don't get a proper fit, doesn't matter which starting params I use.
> This is my code:
>
> function dorman, x,p
> return,P(0)*P(1)*148.1*(X^(-P(1)-1.0))*exp(-P(0)*X^(-P(1)))
> end
>
> start=[1.5D, -0.5]
> p=MPFITFUN('dorman',x,y,rerr,start)
> yy=dorman(x,p)
>
> oplot, exp(x), exp(yy), color = 150 ; using natural log axes.
>
> What am I doing wrong?
> Thanks for any help.

Hi Helena--

This is a very difficult question to diagnose, because of lack of information. It is not even clear to me whether MPFITFUN is failing yet.

Here are some possibilties to explore:

1. Are you sure you are plotting it correctly? "plot, exp(x), exp(yy)" is not the way I *ever* do log-log plotting.

2. Before you fit, have you tried to plot the function with reasonable parameters, to see if it makes sense?

3. Your function has a singularity at X EQ 0. This will confuse the fitter. Be sure your X range is far removed from singularities.

4. Sometimes a function depends very weakly on a parameter, so weakly in fact that the automatic derivative facility of MPFIT is not able to compute a derivative for that parameter. One symptom of this is that the fitter may return without appearing to iterate, ie, it returns the START parameters.

The solution of this is to investigate the PARINFO keyword, using the STEP or RELSTEP fields. This will allow you to set a step size for

the derivative computation. However, don't do this unless you really need to, because it may lead to more problems if you're not careful. Also, you can compute analytical derivatives if that will help (in this case you must set AUTODERIV=0).

Hope these suggestions help!

Good luck,
Craig

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