Subject: Re: CURVFIT with XY error
Posted by Craig Markwardt on Tue, 10 Feb 2015 19:11:07 GMT
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On Tuesday, February 10, 2015 at 1:33:18 PM UTC-5, rrya...@gmail.com wrote:
> Are you sure your function is nonlinear? I mean, is there any transformation you can apply to force it to be linear?

Things can get a little tricky when the function is non-monotonic. Linear, exponential and power law models are all monotonic, and will work fine with errors in X and Y, but you can also transform those into linear space and use MPFITEXY / FITEXY. This works because the function is single-valued whether it is expressed as y = f(x) or x = g(y).

Once your function has any bumps or wiggles, it's no longer a single-valued function in both x and y. Error bars in the x direction make it ambiguous whether a data point is attached to the left side of a wiggle, or the right side of it. This depends on how sharp the wiggles are, and how small the error bars are.

All this doesn't mean that fitting won't work, but it might mean that the fit converges to a local minimum which is not the global best fit. I.e., extra care is needed.

Craig

P.S. To Phil Brubaker, as already pointed out, the IDL subroutine is called CURVEFIT, and it has existed within IDL since 1982. Good luck with your trademark action.