Subject: Re: On errors calculated by curve-fitting routines
Posted by Craig Markwardt on Fri, 07 Mar 2008 03:53:16 GMT
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Gernot Hassenpflug <gernot@nict.go.jp> writes:
> I find that in IDL the routines POLY_FIT, LMFIT and CURVEFIT can all
> calculate the parameter covariance matrix and it is documented that
> LMFIT uses the method of Burrell and Numerical Recipes. I cannot tell
> what method the other two routines use.

Anthony mentioned MPFIT, which is a non-linear fitting engine translated from MINPACK. As far as I understand, the covariance matrix is equivalent to that from Numerical recipes.

> I am hoping that contributors to this list could give their comments
> and opinions on what method of parameter variance and covariance is
> most sound, and which routines are therefore preferred for a
> polynomial fitting case (possibly over-determined).

For linear least squares, I think the covariance matrix is reasonably useful. In my field, it's common to use the delta-chi-square method described in Numerical Recipes, which usually involves making a confidence grid for pairs of parameters that are of interest.

Craig