Subject: Re: Gauss2DFit question
Posted by Craig Markwardt on Tue, 09 May 2000 07:00:00 GMT
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"K. Bowman" <k-bowman@null.tamu.edu> writes:
> I'm trying to use the library routine GAUSS2DFIT to fit some smooth,
> blobby functions. My experience so far has been ... ah ... suboptimal.
> It does not converge quickly or well.
>
> Example (modified from the example in the manual):
>
...
> yfit = GAUSS2DFIT(z, b, /TILT) ;Fit the function
...

I hope you try MPFIT2DPEAK, which is a drop-in replacement for GAUSS2DFIT, but is based on the MINPACK-1 family of more robust fitting routines at my website. The only change I make was to the function name, otherwise the invocation is the same:

```
yfit = MPFIT2DPEAK(z,b,/tilt)
```

MPFIT2DPEAK also has some other cool peak-like functions, and has all the standard MPFIT-family bells and whistles. Of course you will need to download MPFIT & MPFIT2DFUN, the service routines that make it go.

http://cow.physics.wisc.edu/~craigm/idl/idl.html

These are the results I got, much closer to what you probably want:

```
Should be:   5.0000   10.0000   21.3333   10.0000   64.0000   60.0000  0.7854
Is:      :   5.0089   10.0095   21.3838    9.9872   64.0621   59.9459  0.7790
```

Alas, it took a little longer, but my philosophy is slower and right is better than faster and wrong.

I should also mention that determining the parameters of a peak can be pretty hard to do automatically, especially when noise is present. I believe the approach implemented in MPFIT2DPEAK is actually quite a bit more robust than that of GAUSS2DFIT, but still, it cannot be perfect.

If you can, I strongly recommend supplying starting values that match your problem. For example, if you know where the peak is roughly, or the width of the peak, that can really help the peak finding process.

Good luck!

Craig

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