
Subject: Re: constraining parameters in multi-Gaussian 1D fitting
Posted by [Craig Markwardt](#) on Mon, 05 Sep 2005 17:07:42 GMT
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"Jess" <jobrien@mso.anu.edu.au> writes:

- > One constraint I am unable yet to do is: I = would like to be able to
- > tie the peak flux of the Gaussians such that the peak flux of last
- > Gaussian is always greater than that of the first Gaussian.
- > I tried using
- > `parinfo((n_gauss-1)*3).tied = 'GT P[0]'`
- >
- > However the tied structure of parinfo doesn't seem to be meant to
- > accept operators like GT,LT, etc. ...

True. MPFIT's TIED fields are limited to equality constraints only.

...

- > However this requires assigning rather tight bounds to P[0] which I
- > really don't know well. Is there a smarter way I can do this using
- > 'tied' or another structure in parinfo?

One approach is to fit one gaussian at a time starting with the strongest one and working your way down to the fainter ones. This assumes that the peaks are well enough separated that they can be fit in succession. If the peaks are blended, well, that's a tough situation.

Long ago I had somebody trying to do something similar, i.e. fit an arbitrary number of gaussians with arbitrary centroids, widths and amplitudes. I warned him that I thought it would turn into an unconstrained mess, it did, and I think he eventually gave up. Sorry, but least squares fitting is not mind reading. The more external constraints you can apply, based on knowledge of the problem, the better.

Craig

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Craig B. Markwardt, Ph.D. EMAIL: craigmnet@REMOVEcow.physics.wisc.edu
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