Subject: Re: Broad Peak Search Algorithm
Posted by Helder Marchetto on Mon, 11 Mar 2013 22:47:29 GMT
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On Monday, March 11, 2013 11:32:16 PM UTC+1, mark...@gmail.com wrote:
> Hi All
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> I have a dataset which is noisy, but contains a small number (< 5) broad peaks, much like the data given in http://carlwillis.files.wordpress.com/2011/03/wellrich_spect rum.jpg (just an pictorial example, not the actual data). You'll notice that there is both small amplitude noise throughout the data together with a small number of broad peaks.
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> The majority of peak finding routines I've found work on the basis of derivatives/gradients which find hundreds of "local" peaks in the small amplitude noise. I'm interested in tracking the broader, large peaks only. Ideally I'm after a peak finding routine which filters on the basis of peak width and allows some filtering based around amplitude so certain peaks can be selected over others.
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> Just to add to make things even more complicated (:-)) the data is often quite sparse meaning that while the broad peaks are always present, they may be not be as well formed as in the example image above.
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> Can anyone suggest a robust method or existing IDL routine that would help pick out the broad peaks only?
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> Any help or advice would be massively appreciated!
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> Mark

Not an expert, but normally you smooth the data to get rid of the local peaks and then look for changes in sign of the first deriv (zeros or). Then you may use a slope detection/thresholding to further reduce the number of wrong peaks.
You can iteratively reduce the smoothing and monitor the positions of the peaks that appear... This should show the "correct" peaks first.
Clearly though, if you know what elements you're expecting, you will know the approximate energy and that is normally of great help. If you also can guess the width, that is another helper.

Can't help more. Sorry.

Cheers,
Helder
