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Subject: Re: Broad Peak Search Algorithm  
Posted by [Paul Van Delst\[1\]](#) on Mon, 11 Mar 2013 23:15:58 GMT  
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First thing I would try is remove the high frequency noise.

If your data is regularly sampled, Fourier transforming it, truncating the result (perhaps applying a suitable low-pass filter and then zerofilling?), and then transforming it back to your original domain would do that.

The result at that point would preserve the "spectral integrity" of the lower frequency peaks you seek to isolate. You could then use the derivative peak-finding methodology you mention.

The big issue with using Fourier transform is your mention of data sparsity. If the sampling of your data is below a critical threshold for the various peak features, the Fourier approach won't help.

But, it's pretty cheap to give it a shot. :o)

cheers,

paulv

On 03/11/13 18:32, markjamie@gmail.com wrote:

> Hi All

>

> 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\\_spectrum.jpg](http://carlwillis.files.wordpress.com/2011/03/wellrich_spectrum.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.

>

> 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.

>

> 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.

>

- > Can anyone suggest a robust method or existing IDL routine that would
  - > help pick out the broad peaks only?
  - >
  - > Any help or advice would be massively appreciated!
  - >
  - > Mark
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