Subject: Re: FFT example. Help!
Posted by Paul van Delst on Mon, 01 May 2000 07:00:00 GMT
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Peter Brooker wrote:
>
> I am trying to understand the FFT routine IDL uses. Part of my problem
> is that though I am familiar with Fourier transforms, I am somewhat
> unfamiliar with the fast Fourier transform.
>
> Has anybody written a program that works through a known transform using
> the FFT procedure? In particular, I want to be able to plot out F(u) vs
> u and have it "make sense".

Umm, I'm not quite sure what exactly it is you are asking but I have code I use to transform spectral data (i.e. down- or up-welling measured atmospheric radiance) into interferograms and vice versa. Check out:

http://airs2.ssec.wisc.edu/~paulv/#IDL Spectral

and look at the functions fft_to_interferogram.pro and fft_to_spectrum.pro. The actual FFT'ing is performed in one line (of course) with all the rest of the code for input checking and "x"-value (abscissae?) calculation (e.g. from frequency in cm^-1 to optical delay in cm and back).

If, on the other hand, you want FFT references, the online help gives a good general description and, I believe, a reference. For a comparison I did of the IDL FFT with the (Fortran) NR FFT, check out

http://airs2.ssec.wisc.edu/~paulv/fft/fft_comparison.html

It details some of the intricacies of organising the input and output data (mostly for the Fortran FFT) so you get what you expect on the ass-end of the problem. :o) The test code and data files are at the bottom of the page.

Hope this is helpful.

paul
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