Subject: Re: FFT help
Posted by R.G.Stockwell on Fri, 05 Nov 2004 18:47:05 GMT
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"IDLmastertobe" <shi_lee@hotmail.com> wrote in message
news:26d23fcf09dce26228fc67cf81ec832f@localhost.talkaboutpro gramming.com...
> Hey, I am experiencing problem using fft function. Since FFT function
> provides the fourier transform of a certain input, for example,
> 8*cos(!PI*x/6), I would expect an amplitude of 4 at 2 shifted frequencies,
> namely -!PI/6 and PI/6. However after I recieved data from the FFT, I
> recieved some amplitudes close to 2 at some random locations, can anyone
> explain to me why it happened? Thanks for your time.

You quite probably did not sample the frequencies exactly at -!pi/6.
The other peaks are probably sidelobes.
I suggest reading several books about signal processing and spectral
analysis.
A great book to start with is Brighams "FFT and its applications"

Also, check out the following code

```
freq = 11
len = 100
amp = 8
t = findgen(len)
signal = amp*cos(2*!pi*freq*t/len)

ampspe = abs(fft(signal))
```

You will find your peak = 4 for the frequencies at freq/len.

Note that positive freqs come first in the fft, followed by the negative
freqs.

Cheers,
bob