
Subject: Re: FFT Exasperation

Posted by [Kenneth P. Bowman](#) on Mon, 12 Jul 2004 03:57:09 GMT

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In article <ccsdvn\$cn@odbk17.prod.google.com>, jamiesmyth_uni@yahoo.ca wrote:

> Hi all,
>
> Can someone please walk me through the IDL FFT function with regards to
> the code below. In particular can someone explain why, 'Method 1' has
> problems with $n=\{1023, 1022, 1021\}$ but works fine for 1020, 1024? I
> thought I understood FFTs well enough but here I am with 3 different
> texts getting more confused by the minute about the difference between
> the math on the page and the code in my head... At this point, I'm not
> even sure I understand why the two shifts in 'Method 2' are required.
> The only think that I do know is that all my texts agree that a top-hat
> function ought to transform to a pure sinc function. Something is
> obviously getting lost between theory and practice.

I'm not quite sure what you are doing with all the indexing. Try this:

PRO FFTTEST2

```
; Create a sinc function in IDL starting with a rectangular  
; modulation function.
```

```
!p.multi=[0,1,2]
```

```
n = 1023          ; number of points  
w = 50            ; width of box  
a = DBLARR(n)  
a[0:w-1] = 1.0D0
```

```
PLOT, a, /XSTYLE
```

```
PLOT, SHIFT(FLOAT(FFT(a)), n/2), /XSTYLE
```

```
END
```

It seems to work fine for various n and w.

Ken Bowman
