
Subject: Re: FFT of gaussian

Posted by [Kenneth P. Bowman](#) on Wed, 12 Jan 2011 14:28:31 GMT

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In article

<e8f1db77-67a5-491f-9671-fbd85c50a7b6@a10g2000vby.googlegroups.com>,
Gray <graylikethecolor@gmail.com> wrote:

> Hi all,

>

> Here's something I don't really understand. The Fourier transform of
> a Gaussian function is another Gaussian... so why if I create a
> Gaussian and run FFT do I not get a Gaussian? Is it because my
> Gaussian vector is discrete? How can I fix this?

You get the discrete transform of a discrete approximation to
a Gaussian, which is also a discrete approximation to a Gaussian.

Try this:

```
IDL> x = -5.0d0 + 0.1d0*dindgen(101)
```

```
IDL> y = exp(-(x^2))
```

```
IDL> plot, x, y
```

```
IDL> yt = fft(y)
```

```
IDL> plot, shift(abs(yt),50)
```

Don't forget, the IDL always does a full complex FFT.

Ken Bowman
