Subject: Re: Complications with variance using FFTs
Posted by olde_english33 on Wed, 21 Jul 2004 17:53:30 GMT
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Craig Markwardt <craigmnet@REMOVEcow.physics.wisc.edu> wrote in message news:<onllheeqc8.fsf@cow.physics.wisc.edu>...
> olde_english33@hotmail.com (Eric) writes:
>>
>> Hello. First, I don't understand what you mean by "multiplied by
>> exp(-phi)? Secondly, consider the following code instead:
>
> I mean, that for a real signal, the Fourier components at negative
> frequencies are the complex conjugate of those at positive
> frequencies. Thus, EXP(IMAG*PHI) at positive frequencies becomes
> EXP(-IMAG*PHI) at negative frequencies, for arbitrary PHI. Since you
> are not changing to the complex conjugate at negative frequencies, I
> think that's where your problem lies.
>
>> Now I think all the code snipets are related correctly. I checked the
>> the average variance of all the xf1[*,i] was equal to
>> sum(avgspec1)/31.0 and that the average variance of xf2[*,i] was equal
>> to sum(avgspec2)/31.0. This check held. It works if I don't throw in
>> the symmetric random phase exp(e). Does this phase throw off the
>> variance? Is there any way to account for inputting this random
>> phase?
>
> Well, it's still worth investigating the original questions I posed...
>
> Craig

From what I can gather from my program, the positive frequencies are those from 1:15. Then the frequencies from 16:30 are the complex conjugates of the frequencies from 15:1. Therefore, I thinkt that IDL is already accounting for the complex conjugate in the negative frequencies, unless I am missing something.