Subject: Re: red noise ?
Posted by news.qwest.net on Sun, 12 Mar 2006 00:18:38 GMT
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"Craig Markwardt" <craigmnet@REMOVEcow.physics.wisc.edu> wrote in message news:onr758lkvt.fsf@cow.physics.wisc.edu...
>
...
>
> Sure, here is a function that does that, modulo a normalization, which
> you will have to diddle yourself. You enter the frequency and desired
> PDS, and the output is one realization of such a power spectrum,
> assuming random phases. [Of course there are an infinite number of
> realizations with the same PDS. The PDS discards 50% all phase
> information so you can't go backward to a unique time series from it
> alone.]
>
> Craig

Thanks Craig,
it wasn't exactly what I was looking for; I wasn't detailed enough in my original post. I do not want to use an fft to generate the time series, since
my purpose is to study in detail the effects of windowing, and sampling, on the
shape and slope of the spectra. A red spectrum has a large dynamic range, and
the sidelobes of the powerful low frequencies can contaminate the weak higher frequencies. I am also interested in analyzing the aliasing that occurs
when one is samples a red spectrum (which may flatten out the frequency response near the nuquist).
So I am looking for a time domain technique, either an autoregressive process
(which I have but it doesn't give a pure red spectrum, it is merely approximately red
through the mid freqs) or perhaps a digitial filter of white noise.

Thanks,
bob