Subject: Re: Random numbers with predefined spectral density Posted by steinhh on Tue, 22 Aug 1995 07:00:00 GMT

View Forum Message <> Reply to Message

In article <41ab22\$jp5@rs18.hrz.th-darmstadt.de>, hahn@hrz.th-darmstadt.de (Norbert Hahn) writes:

```
|> I want to calculate random numbers with other than white noise |> spectrum. The noise spectrum (amplitude vs. frequency) is |> given and I need random numbers that adhere to this spectrum. |> |> Actually, the spectrum is given by a FIR filter of order 12: |> coeff = [ 1.48, 1.64, 0.927, ..., 3.1e-3] |> |> How to proceed from here ? |> |> Norbert Hahn
```

Simply produce white noise, and filter it with your desired noise spectrum (beware of the difference between *amplitude* and the *power* spectrum).

Given N = Noise amplitude vs. frequency, an array with NN elements, you simply use:

```
NOISE = fft( fft(randomn(seed,NN),-1)*N , 1)
```

You should also include some renormalization of the total power in your noise, of course.

Stein Vidar