Subject: Re: Finding PSD Mean Frequency
Posted by Craig Markwardt on Thu, 22 Apr 1999 07:00:00 GMT
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Mark McGillion <mm@fs1.co.umist.ac.uk> writes:
>
> I have a PSD and would like to find the mean frequency. The goal of this
>
> is to fit a gaussian curve to the PSD to represent the mean and variance
>
> of the power in the given frequency range. I am making the assumption
> that the frequency power is normally distributed and can be modelled by
> 1 or more gaussians. The frequency range is 0-1000Hz.
>

Procedures you will want to look at are

GAUSSFIT - fits a gaussian to a series
CURVEFIT - fits an arbitrary IDL function to a series
MPFIT, MPFITFUN - fits an arbitrary IDL function to a series

GAUSSFIT is the least general, but may be enough for your purposes. If you decide that your function needs to be more complicated, for example gaussian plus a constant, then you should try one of the latter solutions. CURVEFIT is built into IDL and has on-line documentation.

MPFIT, MPFITFUN and MPFITEXPR are available from my web page, http://astrog.physics.wisc.edu/~craigm/idl/idl.html. They are IDL versions of the MINPACK robust least squares fitting routines. For noisy data I have found them to be more reliable than CURVEFIT. The headers of each have complete documentation, and a tutorial example of fitting a guassian is on the web page.

Good luck,
Craig
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