Subject: Re: gaussian convolution
Posted by Kaushal Sharma on Wed, 27 Sep 2017 10:37:21 GMT
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Dear Wayne,

Could you please explain the mathematics (or refer to some paper) behind convolving with a Gaussian of sqrt(b^2-a^2) to change the resolution from a Angstrom to b Angstrom?

Thanks,

On Saturday, March 24, 2007 at 9:50:51 PM UTC+5:30, Wayne Landsman wrote:
>> My first guess would be to use a gaussian filter in order to reduce
>> the resolution. The spectrum is (intensity vs. wavelength),so I
>> think 1D gaussian filter would be OK. Is there anyone with experience
>> on it ?
>>
> There are several IDL procedures on the Web to convolve a spectrum
> with a Gaussian; you might try gaussfold.pro at
>
> http://astro.uni-tuebingen.de/software/idl/aitlib/misc/gauss fold.pro
>
> which requires the procedure psf_gaussian.pro to create the kernel
>
> http://idlastro.gsfc.nasa.gov/ftp/pro/image/psf_gaussian.pro
>
> If your spectrum has 1 Angstrom resolution, and you want to degrade it
> to 3 Angstrom resolution, you should convolve it with a Gaussian with
> a FWHM of sqrt(3^2-1^2) = 2.82 Angstrom,e.g.
>
> fsmooth = gaussfold(w,f,2.82)
>
> (The wavelength vector and FWHM should have the same units.) --Wayne