Welcome

Discrete Fourier Sum

1. Discrete Fourier Transform.doc .htm(in detail)– or quickly Fourier Sum Definitions.doc .htm

   Fourier.doc .htm– The traditional Fourier integral approach.

   Sumortho.htm ..\ligo\Power.htm

   LaplaceTransform.doc .htm – Shows relation of Laplace transform to Fourier transform.

2. Delta Functions.htm -- Delta Functions.doc

3. Mixed Fourier.doc .htm letting the time or frequency interval become infinitesimal.

4. Nyquist.doc .htm – finding the function that the data points sample.

5. Codes

   a. DFT code.doc .htm– a slow Fourier Transform for dealing with zero padded data using ideas detailed in Advancing the sin.doc .htm

   b. Fast Fourier Transform.doc .htm

   Testing The FFT.doc

   c. DFTFFTR.doc .htm - Designed to change the value of D_t in real experimental data and to also find the derivative of this data. Uses data extension, the slow Fourier transform where appropriate and the fast Fourier transform. Includes zips to the codes.

6. Symmetric range.doc .htm Using the standard FFT from –T/2 to T/2 instead of 0 to T. – The best test and code is in fftsrHth.zip Fortran code that starts and ends from data files is fftsr.for. Code that starts with DIIN(2×Nx) and ends with DIIOUT(2*Nf) is in fftsrnr.for.

7. DiscreteConvolution.doc .htm

   convolution.doc

8. Phase correction - phasec\phasec~1.doc   /phasec

9. multi-dimensional transforms

a. DFT2-FFT2.docx .htm Show timing for the simplest Fourier Transform, and intermediate and the FFT.

   FFT2-Theory.doc .htm compares the FFT results to those analytically attained for two Gaussians.

      b. 3d-SymFFT\DocList.mht

c. 3dSymmFFT2.doc

d. Convolution in 3d.doc

10. OZeqn.doc

11. Sine transform.doc

12. Test problem in detail.doc

Integrals

1. Trap rule.doc Trap rule2.doc

2. TransformOfGaussian.doc

3. Gabor windowing makes the Fourier sum à Fourier integral. It also makes D(f) àD(f,t)
gabor\Gabor Transforms.doc

4. filon\Filon.doc – An integral of the polynomial interpolating BLI points.

5. SplineFT.DOC – The 4th derivative discontinuities produce a $1/f^4$ term in the Fourier transform.

6. Error Function and Wofz.doc
WOFZ.DOC

Practical Applications

1. fftfit.doc   Fitting data.doc   FIT.doc
Exp vs sine and cosine.doc

2. Solution of a differential equation in transform space. -- Green's function diffFT.doc
ddho2.doc Violin.doc

3. 15 digit Aigau data in Fourier and time domains..\aigau\AiGaussPgen\Welcome.htm

4. Fourier.zip – short set of codes.

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04/20/2007  01:36 PM              26,112  Fourier Sum Definitions.doc
05/12/2008  10:15 AM           1,767,936  Discrete Fourier Transform.doc
02/27/2007  04:40 AM              82,432  Fourier.doc – connects the notation
with the usual physics notation and includes the delta functions.
07/29/2005  11:18 AM              51,200  Mixed Fourier.doc – part of Fourier


 Directory of C:\public_html\Fourier


04/17/2007  10:47 AM             164,352  CFOUR.doc htm– 1941 Churchill with
Bob notes
05/03/2000  01:14 PM              64,000  Coddet.doc – part of another
document
04/15/2003  10:27 AM              53,248  Ddho.doc   -- A driven damped harmonic
oscillator violin mode
04/11/2006  08:28 AM              82,944  ddho2.doc – continuation of above
04/20/2007  01:37 PM              53,248  Delta Functions.doc htm sin(x)/x
form starting from discrete Fouriert definition.
03/24/2005  10:47 AM             265,728  diffFT.doc  Similar to Ddho above
04/05/2006  08:17 PM              45,056  EMTH.DOC
06/06/2006  02:22 PM              37,376  Exp vs sine and cosine.doc
03/08/2006  10:22 PM              25,088  Harry Nyquist.doc
03/23/2006  05:17 AM             777,216  Ideal low pass filter.doc
03/08/2006  10:27 PM              33,792  IEEENyquist.doc
07/05/2005  09:05 AM             919,552  Low pass filters3.doc
08/26/2006  06:05 PM             128,000  Power.doc
09/11/2006  05:24 AM              50,176  Sine transform.doc
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10/07/2003  04:48 PM                64,000 Sum of delta functions.doc
02/26/2007  02:16 PM               833,536 Test problem in detail.doc
02/16/2003  04:38 PM                19,456 Testing The FFT.doc
04/18/2007  03:12 PM                45,056 TransformOfGaussian.doc
08/02/2005  10:47 AM                55,296 Trap rule.doc
07/27/2005  04:03 PM                33,280 Trap rule2.doc
01/23/2007  10:45 PM               258,560 Violin.doc
09/04/2006  06:40 AM             1,365,504 WhiteSpace.doc
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02/27/2007  04:40 AM                57,914 Fourier.htm
02/27/2007  04:49 AM                57,601 Nyquist.htm
03/16/2004  12:02 AM                10,818 Sinetran.htm
06/09/2003  07:54 AM                14,352 Sumortho.htm
04/18/2007  03:15 PM                47,613 Symmetric range.htm
02/26/2007  02:16 PM                20,382 Test problem in detail.htm
04/18/2007  03:12 PM                22,408 TransformOfGaussian.htm
01/23/2007  10:46 PM                84,229 Violin.htm
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