

Apodization Effects In Fourier Transform Infrared

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Apodization Effects In Fourier Transform

Applying some type of function to Fourier transform integration to reduce the ripples, as in this example, is called "apodization" and the function is known as an "apodization function." It can be seen from the examples of the box-car waveform and triangular waveform that reducing the ripples implies a compromise between the resolution and peak height.

Fourier Transform and Apodization : SHIMADZU (Shimadzu ...

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Fourier Transform and Apodization - Shimadzu

The problem of the effect of apodization on the retrieval of geophysical parameters from infrared radiances recorded by Fourier transform spectrometers has been analytically and numerically addressed.

Effects of apodization functions of imaging Fourier ...

833 Apodization effects in Fourier transform infrared difference spectra R. S. Bretzlaff and T. B. Bahder (+) Materials Sciences Laboratory, The Aerospace Corporation, El Segundo, California 90245, U.S.A. (Reçu le 28 mai 1986, accepté le 26 août 1986) Résumé. - Dans le cas de bandes intenses des artefacts dus au processus d apodisation peuvent apparaître

Apodization effects in Fourier transform infrared ...

During the process of imaging in interference spectrum, apodization is an important part of the spectrum reconstruction in imaging Fourier transform spectrometer (IFTS), and it has a powerful effect on the accuracy of reconstructed spectra.

The Study of Apodization of Imaging Fourier Transform ...

This paper presents, in a qualitative and practical manner, several aspects of apodization and the utilization of phase information in Fourier transform spectroscopy. For completeness, examples are presented which illustrate the effects on spectra of applying the more common apodizations.

Apodization and Phase Information in Fourier Transform ...

of Fourier-transform spectroscopy, particularly in the community of atmospheric remote sensing. There are many different apodization approaches, too varied to describe in any detail here. One can even fine tune the windowing function to a specific application.^{5,6} In the field of FTS remote

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sensing, perhaps the most common form of apodization ...

Apodization effects in the retrieval of volume mixing ...

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Communication Effects of zero-filling and apodization on spectral integrals in discrete Fourier-transform spectroscopy of noisy data Andreas Ebel a,b,*, Wolfgang Dreher c,d, Dieter Leibfritz c,d a Department of Radiology, University of California San Francisco, DVA Medical Center San Francisco, MR Unit (114M), 4150 Clement St., San Francisco, CA 94121, USA

Effects of zero-filling and apodization on spectral ...

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Apodization functions in Fourier transform ion mobility ...

Apodization in signal processing. The term apodization is used frequently in publications on Fourier-transform infrared (FTIR) signal processing. An example of apodization is the use of the Hann window in the fast Fourier transform analyzer to smooth the discontinuities at the beginning and end of the sampled time record.. Apodization in digital audio

Apodization - Wikipedia

Apodization makes it possible to exclude effects that occur near the start and/or end of the simulation from the monitors fourier transform. This feature can be useful for filtering away short

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lived transients that occur when a system is excited with a dipole source, and when studying high Q systems that decay very slowly.

Understanding time apodization in frequency domain ...

A key relationship for apodization for a rectangular aperture is that in each plane (xz or yz), the far-field pattern is the plus i Fourier transform of the aperture function, according to Eqn 6.8. Aperture functions need to have rounded edges that taper toward zero at the ends of the aperture to create low sidelobe levels.

Apodization - an overview | ScienceDirect Topics

Apodization Functions for Fourier Transform Spectroscopy Margaret K. Tahic and David A. Naylor Department of Physics, University of Lethbridge, 4401 University Dr., Lethbridge, AB, T1K 3M4, Canada margaret.tahic@uleth.ca and naylor@uleth.ca Abstract: The three Norton-Beer apodizing functions provide a reduction in the sidelobe

Apodization Functions for Fourier Transform Spectroscopy

The effects that finite resolution and choice of apodization function have on Fourier transform (FT) Raman spectra are illustrated by the 839 cm^{-1} (ν_1) and 914 cm^{-1} bands of KMnO_4 . FT-Raman spectra were recorded at 0.5, 1, 2, 4, 8, 16 and 32 cm^{-1} resolution using boxcar, Norton—Beer (strong, medium and weak) and triangular apodization functions at each resolution.

The effect of apodization and finite resolution on Fourier ...

Effect of apodization on the retrieval of geophysical parameters from fourier-transform spectrometers. Amato U, De Canditiis D, Serio C. The problem of the effect of apodization on the retrieval of geophysical parameters from infrared radiances recorded by Fourier transform spectrometers has been analytically and numerically addressed.

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Effect of apodization on the retrieval of geophysical ...

Fourier transform, when multiplied by any existing apodization (e.g., due to divergence or vignetting of the beams within the interferometer), becomes the new ILS. 3. COMPARING APODIZING FUNCTIONS During his extensive study Filler [2] devised a graphical method for comparing different apodizing functions and their corresponding ILS.

Apodizing functions for Fourier transform spectroscopy

Calculations assuming discrete Fourier-transform data are compared with Monte-Carlo simulations. The effects of zero-filling and apodization are examined for free-induction-decay (FID) signals and for symmetric spin-echo signals in one and two dimensions, with particular attention to features not previously presented in the literature.

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