See Also
VoigtPeak, **VoigtFunc**, **Built-in Curve Fitting Functions** on page III-206

FakeData

FakeData(*waveName*)

The FakeData function puts fake data in the named wave, which must be single-precision float. This is useful for testing things that require changing data before you have the source for the eventual real data. FakeData can be useful in a background task expression.

The FakeData function is not multidimensional aware. See **Analysis on Multidimensional Waves** on page II-95 for details.

Examples

```
Make/N=200 wave0; Display wave0
SetBackground FakeData(wave0)        // define background task
CtrlBackground period=60, start      // start background task
// observe the graph for a while
CtrlBackground stop                  // stop the background task
```

FastGaussTransform

FastGaussTransform [***flags***] ***srcLocationsWave, srcWeightsWave***

The FastGaussTransform operation implements an efficient algorithm for evaluating the discrete Gauss transform, which is given by

$$G(y_j) = \sum_{i=0}^{N-1} q_i \exp\left(-\frac{\left\| y_j - x_i \right\|^2}{h} \right),$$

where ***G*** is an M-dimensional vector, ***y*** is an N-dimensional vector representing the observation position, $\{\boldsymbol{q}_i\}$ are the M-dimensional weights, $\{\boldsymbol{x}_i\}$ are N-dimensional vectors representing source locations, and *h* is the Gaussian width. The wave M_FGT contains the output in the current data folder.

Flags

/AERR=*aprxErr* Sets the approximate error, which determines how many terms of the Taylor expansion of the Gaussian are used by the calculation. Default value is 1e-5.

/WDTH=*h* Sets the Gaussian width. Default value is 1.

/OUTW=*locWave* Specifies the locations at which the output is computed. *locWave* must have the same number of columns as *srcLocationsWave*. The other /OUT flags are mutually exclusive; you should use only one at any time.

/OUT1={*x1,nx,x2*}

/OUT2={*x1,nx,x2,y1,ny,y2*}

/OUT3={*x1,nx,x2,y1,ny,y2,z1,nz,z2*}

Specifies gridded output of the required dimension. In each case you set the starting and ending values together with the number of intervals in that dimension. You cannot specify an output that does not match the dimensions of the input source.

/Q No results printed in the history area.

/RX=*rx* Sets the maximum radius of any cluster. The clustering algorithm terminates when the maximum radius is less than *rx*. Without /RX, the maximum radius is the same as the maximum radius encountered.

/RY=*ry* Sets the upper bound for the distance between an observation point and a cluster center for which the cluster contributes to the transform value. The default value for *ry* is 4 times the Gaussian width as specified by the /WDTH flag.