

URL: http://cxc.harvard.edu/ciao3.4/ptsrc2d.html

Last modified: December 2006

AHELP for CIAO 3.4 Ptsrc2d Context: sherpa

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Synopsis

A 2-D file-based point-source fitting model.

Description

PTSRC is a file-based model that may be used in fitting image data, to determine, e.g., if they are point-like or extended.

This model cannot be used as an instrument model.

FITS formats are allowed for the input model file. The current implementation requires that the image bins of the data and the PTSRC2D model file are the same.

Assume that the PSF is provided in a FITS image (file) of size N_x * N_y. N_x and N_y may be much larger than the PSF size in pixels. An optimally sized sub-image of size xsize * ysize can speed up the computation of model amplitudes.

If xoff = yoff = 0, the sub-image is extracted from the center of the original image contained in file. The user may find that changing xoff and/or yoff can result in his or her being able to extract a smaller optimally sized sub-image if, say, the PSF is too asymmetric to be fit easily into a centered rectangle.

If norm is thawed its best-fit value for a point-like source will be approximately equal to the number of detected counts from the source.

The parameters xpos and ypos indicate where the center of the sub-image is to be placed in the data image that is to be analyzed, i.e., they should be set to the location of the source centroid. Note that the initial values of the xpos and ypos are estimated using the input dataset.

PTSRC Parameters

Number	Name	Description		
1	file	input FITS file name		
2	xsize	x-width of the subset region of kernel file to use in convolution		
3	ysize	y-width of the subset region of kernel file to use in convolution		

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4	xoff	x-direction offset	
5	yoff	y-direction offset	
6	xpos	x-position of the centroid in data image coordinates	
7	ypos	y-position of the centroid in data image coordinates	
8	norm	normalization defined as a sum over the model image	

Example

The example below shows the initial parameter values for the PTSRC2D model. Note that the default xsize and ysize values are set to 32. After reading the data file these parameter can be adjusted to expand the image and include most of the PSF fraction. Notice after image command indicates the fraction of PSF included in the sub–image.

sherpa> ptsrc2d[p2]									
sherpa> show p2									
ptsrc2d[p2] (integrate: on)									
PCD	Param Type		Min	Max	Units				
1	file string: '	'none"							
2	<u> </u>	32	1	1024					
3	ysize frozen	32	1	1024					
4	xoff frozen	0	-512	512					
5	yoff frozen	0	-512	512					
6	xpos thawed	128.5	0.5	256.5					
7	ypos thawed	128.5	0.5	256.5					
8	norm thawed	1	0	1000					
she	rpa> p2.file=psf	2.fits							
she	rpa> show p2								
pts	rc2d[p2] (integ	grate: on)							
	Param Type	Value	Min	Max	Units				
	file string: '								
		32	1	1024					
	ysize frozen	32	1	1024					
4	xoff frozen	0	-512	512					
5	yoff frozen	0	-512	512					
6	xpos thawed		0.5	256.5					
7	ypos thawed			256.5					
8	norm thawed	1	0	1000					
	rpa> image p2	5 / '		G 0 004E22					
NOTE: PSF fraction for (xsize,ysize): FRAC = 0.984733									
ahamay n2 mi-a 64									
sherpa> p2.xsize=64 sherpa> p2.ysize=64									
sherpa> p2.ysize=04 sherpa> image p2									
SHE	onerpa. Image pu								

Bugs

See the Sherpa bug pages online for an up-to-date listing of known bugs.

2 Example

Ahelp: ptsrc2d - CIAO 3.4

See Also

sherpa

atten, bbody, bbodyfreq, beta1d, beta2d, box1d, box2d, bpl1d, const1d, const2d, cos, delta1d, delta2d, dered, devaucouleurs, edge, erf, erfc, farf, farf2d, fpsf, fpsf1d, frmf, gauss1d, gauss2d, gridmodel, hubble, idpileup, linebroad, lorentz1d, lorentz2d, models, nbeta, ngauss1d, poisson, polynom1d, polynom2d, powlaw1d, ptsrc1d, rsp, rsp2d, schechter, shexp, shexp10, shlog10, shloge, sin, sqrt, stephi1d, steplo1d, tan, tpsf, tpsf1d, usermodel, xs, xsabsori, xsacisabs, xsapec, xsbapec, xsbbody, xsbbodyrad, xsbexray, xsbexriv, xsbknpower, xsbmc, xsbremss, xsbvapec, xsc6mekl, xsc6pmekl, xsc6pvmkl, xsc6vmekl, xscabs, xscemekl, xscevmkl, xscflow, xscompbb, xscompls, xscompst, xscomptt, xsconstant, xscutoffpl, xscvclabs, xsdisk, xsdiskbb, xsdiskline, xsdiskm, xsdisko, xsdiskpn, xsdust, xsedge, xsequil, xsexpabs, xsexpdec, xsexpfac, xsgabs, xsgaussian, xsgnei, xsgrad, xsgrbm, xshighecut, xshrefl, xslaor, xslorentz, xsmeka, xsmekal, xsmkcflow, xsnei, xsnotch, xsnpshock, xsnsa, xsnteea, xspcfabs, xspegpwrlw, xspexray, xspexriy, xsphabs, xsplabs, xsplcabs, xsposm, xspowerlaw, xspshock, xspwab, xsraymond, <u>xsredden, xsredge, xsrefsch, xssedov, xssmedge, xsspline, xssrcut, xssresc, xssssice, xsstep, xstbabs,</u> xstbgrain, xstbvarabs, xsuvred, xsvapec, xsvarabs, xsvbremss, xsvequil, xsvgnei, xsvmcflow, xsvmeka, xsvmekal, xsvnei, xsvnpshock, xsvphabs, xsvpshock, xsvraymond, xsvsedov, xswabs, xswndabs, xsxion, xszbbody, xszbremss, xszedge, xszgauss, xszhighect, xszpcfabs, xszphabs, xszpowerlw, xsztbabs, xszvarabs, xszvfeabs, xszvphabs, xszwabs, xszwndabs

slang

usermodel

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