Listing of Spextool Procedures and Functions

File I/O

avehdrs.pro	Averages the values of the PA, HA, airmass and time in a FITS header.
cfile.pro	Determines if a file exists.
cpar.pro	Checks user parameters passed to a procedure.
cpath.pro	1) Checks if a path exists. 2) Adds a trailing /,: if necessary.
findfiles.pro	Allows the user to find mulitple files at once.
fsextract.pro	Extracts the indices or filenames from a string, e.g. 1-3,5,7,9-11.
gethdrinfo.pro	Extracts requested hdr info from a FITS header.
mcfxpar.pro	Extracts values from a FITS hdr using a wildcard.
mkfullpath.pro	Constructs a fullpath name for files.
readcmfits.pro	Reads and mean combines a set of FITS images.
readmfits.pro	Reads multiple FITS images into memory and correct for linearity.
reorder.pro	Reorders a list of FITS images to be in A, B order.

Fitting Data

fiterpolate.pro	Fits a smooth surface to data using J. Tonry's fiterpolate routine.
imagepoly.pro	Evaluates polynomial functions of an image
poly1d.pro	Evaluates a polynomial function of one independent variable.
poly2d.pro	Evaluates a polynomial function of two independent variables.
poly_fit1d.pro	Fits a polynomial of a given order to a set of 1-D data.
poly_fit2d.pro	Fits polynomials of given orders to a set of 2-D data.
quadfit.pro	Fits a quadratic surface to data.
robustpoly1d.pro	Robustly fits a polynomial of a given order to a data set.
robustpoly2d.pro	Robustly fits polynomials of given orders to a set of 2-D data.

Image Manipulation

meancomb.pro	Combines a data set using a (weighted) mean.
medcomb.pro	Combines data using a median.
scaleimages.pro	Scales a set of images to the median flux level of all the images.
unrotate.pro	Un-rotates an image rotated using the IDL rountine rotate.

Mathematical

bicucoeffs.pro	Returns the coefficients necessary for bicubic interpolation.
bicuval.pro	Returns the values of a bicubic interpolation.
crange.pro	Checks if a value is in range.

Miscellaneous

getosinfo.pro	Returns the directory and string delemeter for the OS being used.
mklog.pro	Makes a log of SpeX observations based on the FITS headers.
mkpslist.pro	Creates a postscript file with the program names and their purposes.
roundgt.pro	Rounds a pixel value except x.5 is rounded to x instead of x+1.

Plotting and Image Display

mkct.pro	Loads a color table and reserves the lower indices for plotting
mwindow.pro	An easy interface to !p.multi
pscolor.pro	Checks the plotting color for a postscript file.

Spectroscopy

aptotrace.pro	Converts aperture positions in arcseconds to trace coefficients.
atmosdisp.pro	Compute the atmosperic dispersion relative to lambda_0.
concatimgs.pro	Concatinates an arc image and sky image to create a super-arc.
convolvespec.pro	Convolves a spectrum with a Gaussian and propagate the errors.
extractspec2d_ps.pro	Extracts 2D spectra from a XD spectral image.
extractspec2d_xs.pro	Extracts 2D extended source spectra from a XD spectral image.
extractspec_ps.pro	(Optimally) extracts spectra from a XD spectral image.
extractspec_xs.pro	Extracts extended source spectra.
findlines.pro	Identifies arc line positions given the guesses of their positions.
findorders.pro	Determines the position of the order(s) in an spectral image.
findpeaks.pro	Identifies the peaks in the spatial profile of a point source.
findspexarcs.pro	Finds the arc images in a list of SpeX data.
findspexflats.pro	Finds the flat field images in a list of SpeX data.
fixbdpx_median.pro	Fixs bad pixels in a spectral image using the median of nearby pixels.
getspecscale.pro	Determines the scale factors for a stack of spectra.
instrprof.pro	Computes the SpeX instrument profile for different slits.
interpspec.pro	Peforms a linear interpolation and propagate errors.
lightloss.pro	To correct a (post telluric correction) SpeX spectrum for slit losses
lincorrect.pro	To correct for linearity of the SpeX array
maskorders.pro	Masks out the orders in a spectral flat.
mkmask_ps.pro	Constructs an aperture mask for point source spatial profile.
mkmask_xs.pro	Constructs an aperture mask for extended source spatial profile.
mkspatcoeffs.pro	Constructs polynomial coeffients of the spatial profiles.
nlambda.pro	Compute the real part of the refractive index of air.
normspecflat.pro	Normalizes a spectral flat field image.
parangle.pro	To compute the parallactic angle at a given position on the sky.
plotap.pro	Overplots spectral aperture positions on an image.
rdll.pro	Reads a line list into memory.
rdwavecal.pro	Reads a wavelength calibration file for Spextool.

readcal.pro	Reads an extraction mode calibration file for Spextool.
readflat.pro	Reads a Spextool flat field FITS image.
readinstrfile.pro	Reads an instrument file for Spextool.
readspec.pro	Reads a SpeX spectral FITS image.
readtrace.pro	Reads a SpeX trace file.
rectorder.pro	Rectifies (straighten) an order in a spectral order.
redden.pro	Reddens a spectrum by an input E(B-V) value.
robustsfactor.pro	Robustly determines the scale factor between two spectra.
scalespec.pro	Scales a set of spectra to a common flux level.
scalespecsky.pro	Scales spectral sky images to the same sky level.
slittrans.pro	Compute flux passing through a slit assuming a gaussian PSF.
speccor.pro	To correct a stack of spectra for shape differences
spex2text.pro	Converts a SpeX spectral FITS file to a text file.
subspecsky.pro	Subtracts the sky from a spectral image.
telluric.pro	Constructs the telluric correction spectra for SpeX.
tracespec.pro	Traces spectra in an cross-dispersed image.
tracetoap.pro	Converts trace positions to aperture positions.
vegaconv.pro	Determines the convolution kernel to be used in telluric.
vegacorr.pro	Cross correlates a spectrum against the Vega model.
wavecal.pro	Wavelength calibrates either single order or X-dispersed spectra.
writearc.pro	Writes a FITS SpeX arc image.
writecomb.pro	Writes a FITS image of combined SpeX images.
writeflat.pro	Writes a FITS image of a normalized spectral flat-field.
writesky.pro	Writes a FITS SpeX sky image.
writespec_ps.pro	Writes a SpeX point source spectra to disk
writespec_xs.pro	Writes extended source spectra to disk.
xscalespec.pro	Scales a stack of spectra.

Statistics

findoutliers.pro	Determines the outliers in a distribution of data.
moments.pro	Computes statistics on an array.
robuststats.pro	Computes statistics on a data set avoiding deviant points.

Utility

arrinfo.pro	Determines the properties of an array.
imginfo.pro	Determines the properties of an image.

Widget

cfld.pro	Extracts a value from a widget field created by coyote_field2.pro.
getfonts.pro	Obtains the fonts used for buttons and fields.

setfocus.pro	Sets the cursor focus in the coyote_field2 compound widget.
xcombspec.pro	Combines SpeX spectra.
xconkern.pro	Widget used to construct the convolution kernel in xtellcor.
xfindshift.pro	Finds the shift between an object and telluric spectra.
xfwc.pro	Smooths SpeX spectrum with a gaussian or Savitzky-Golay kernel.
xgetoffset.pro	Determines the pixel shift between two spectra interactively.
xlightloss.pro	A widget wrapper for lightloss.pro.
xmergeorders.pro	Merges different orders from a SpeX spectra file.
xmergexd.pro	Merges different orders from a SpeX spectra file.
xmkinstrfile.pro	Creates an instrument cal filee for Spextool.
xmkmask.pro	Eliminates bad spectra from a stack of spectra.
xmkpixmask.pro	To mask certain regions in individual spectra in a stack
xplotprofiles.pro	Plots spatial profiles.
xscalelines.pro	Scales the EW of the absorption lines in the Vega spectrum.
xselectspec.pro	Eliminates bad spectra from a stack of spectra.
xspextool.pro	Widget to drive the SpeX data reduction.
xtellcor.pro	Runs the SpeX telluric correction.
xtellcor_basic.pro	Telluric corrects SpeX spectra by simply dividing by the std star.
xtellcor_finish.pro	Telluric corrects a spectrum using an output telluric spectrum.
xtellcor_general.pro	General telluric correction widget.
xvspec.pro	Displays SpeX spectral FITS data.
xzoomplot.pro	General purpose plotting widget.

Borrowed or Modified

centertlb.pro
cmps_form.pro
coyote_field2.pro
diagovec.pro
findidx.pro
gaussj.pro
interpolv.pro
rieke_unred.pro
savitzky_golay.pro
showprogress_define.pro
sincinterp.pro
str_size.pro
tvimage.pro
wheretomulti.pro