Topic : Shear Analysis of Galaxies

Author : Bhishan Poudel

Date : Aug 22, 2016

Last update: Sep 13, 2016

1. Create par files for psf10.fits and weighted_psf.fits

Program : a1_par_psf10_weighted.py

Inputs : psf10.fits, weighted_psf.fits

Outputs : psf10.par, weighted_psf.par

This program creates the parameter file for given input fisfiles, viz., psf10.fits and weighted_psf.fits.

The par files have THREE vectors: l,m, and st , st has 11 components

2. Use par files to obtain cat files for all JEDISIM output fitsfiles

Program : a2_galshear_cats.py

Inputs : ~/jedisim/jedisim_output/jedisim_output_all_normalized_psf/*.fits
e.g. lsst_0.fits, 90_lsst_0.fits,
e.g. monochromatic_0.fits, 90_monochromataic_0.fits

Outputs : galshear/*.cat
e.g. galshear_0.cat (upto maybe galshear_105.cat)

This program uses the parameters files psf10.par and weighted_psf.par to obtain the catalogs files for all the fitsfiles created by JEDISIM.

Variables in galshear/galshear_0.cat are following:
x,lg,rg,eg,fs,nu,fb0,dfb,flux,mag,rh,rp,rql,
rqu,nbad,fmax,e,psm,psh,d,ox,stmod,Pg,ce,cPg,
cmag,c9e,c9Pg,c9mag,me,mPg,mmag,m9e,m9Pg,m9mag

3. Combine separate cat files and create par files for Pg0 and Pg1 for c,c9,m,m9

Program : a3_galshear_cm_pg01_par_cut_cat.py

Depends : galshear/galshear_*.cat
e.g. galshear_0.cat, galshear_49.cat

Outputs : galshear/galshear_c9pg0.par, etc (2*4 = 8 parameter files) galshear/galshear_big.cat galshear/galshear_cut.cat

This program combines all the cat files for jedisim_fitsfiles.
Then, combines them to create galshear_big.cat .
Then, it creates par files for Pg values (Pg0, and Pg1) for variables c,c9, m, m9 .
It also create galshear_cut.cat.

Here, suffix 9 is for 90 degree rotated case.
cfile is lsst.fits file (i.e. chromatic files).
mfile is monochormatic.fits (i.e. monochromatic files).

4. Create par files for fitted P-gamma vand galaxy shear value

Program : a4_galshear_fpg_shear_cat.py

Depends : galshear/galshear_cut.cat
galshear/galshear_*.par # 8 par files for c,c9,m,m9 monochromatic and colored

Info: 1. This program creates fitted P gamma values (i.e. galshear_fpg.cat) from galshear_cut.cat and 8 other par files.

2. It will also create shear catalog file.