

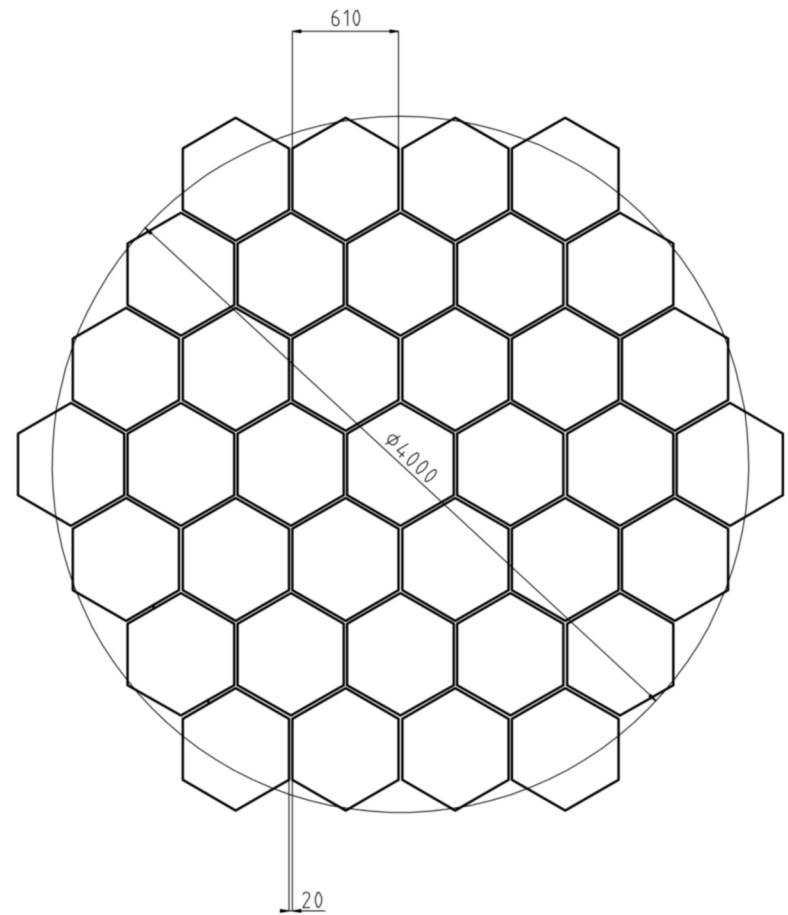
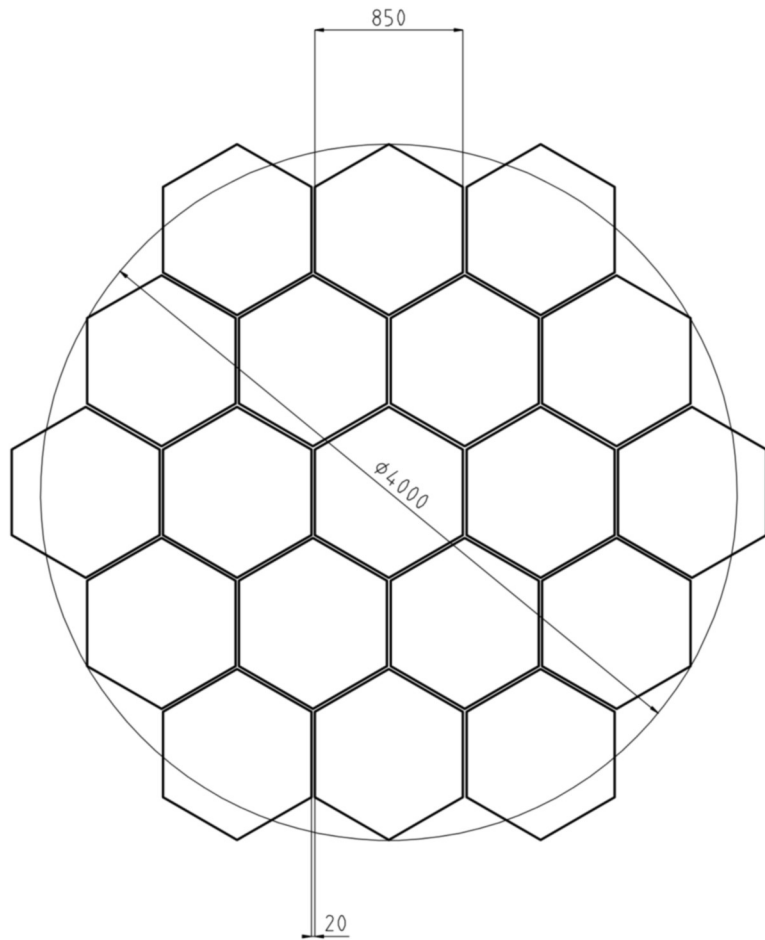
# PSF STUDIES

- `plot_mirrors.c` – standard script to generate mirror configuration
- `sim_telarray` – use ray-tracing to obtain photon distribution of the single star in the focal plane
- $D_{80}$  – diameter of the circle containing 80% of the photons

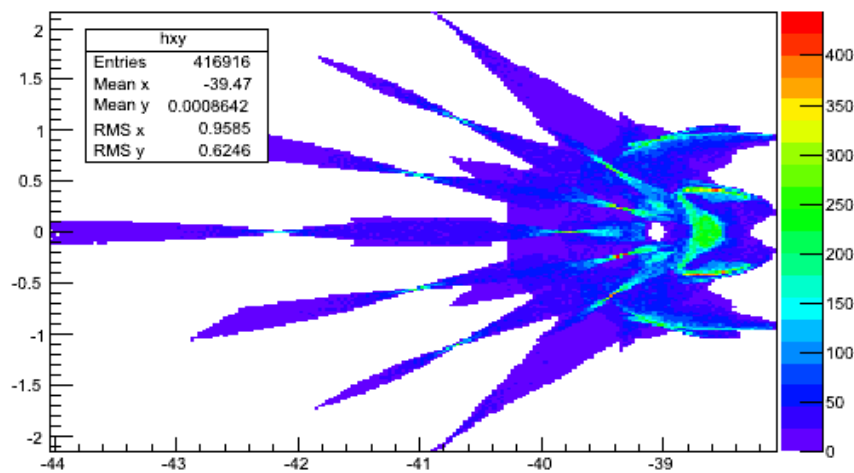
Requirement:

80% containment diameter for the SST shall be less than 0.25deg within 4deg from the optical axis.

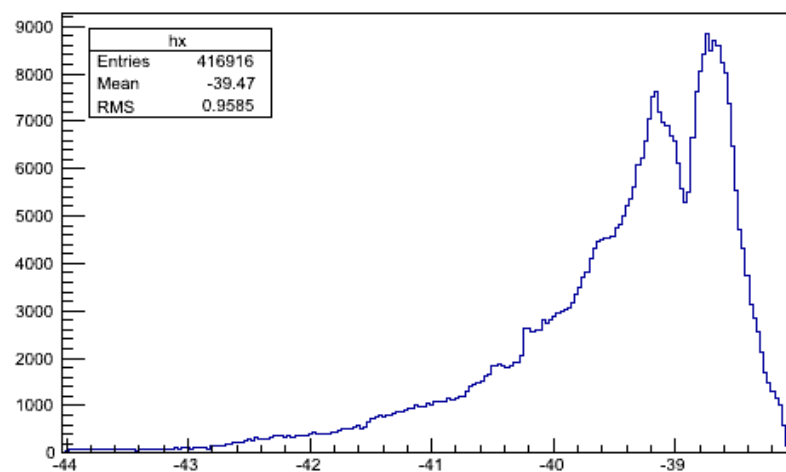
# 4m DC SST Point Spread Function (Cracow mirrors)



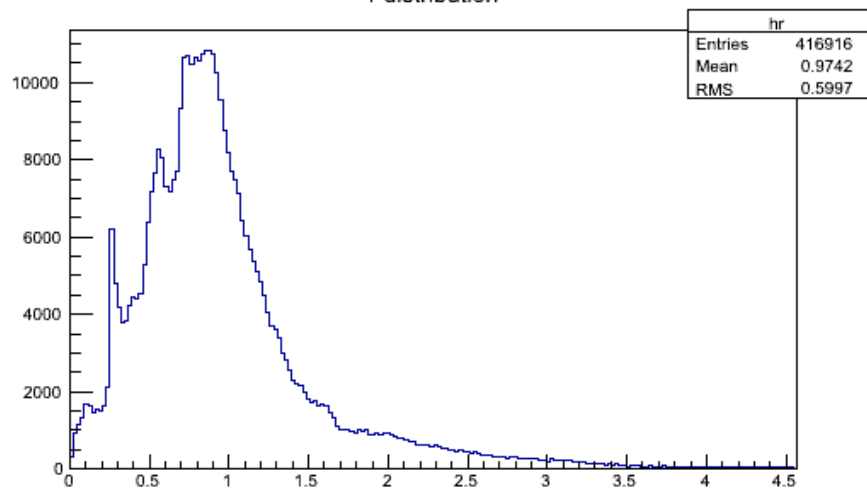
### 2D distribution



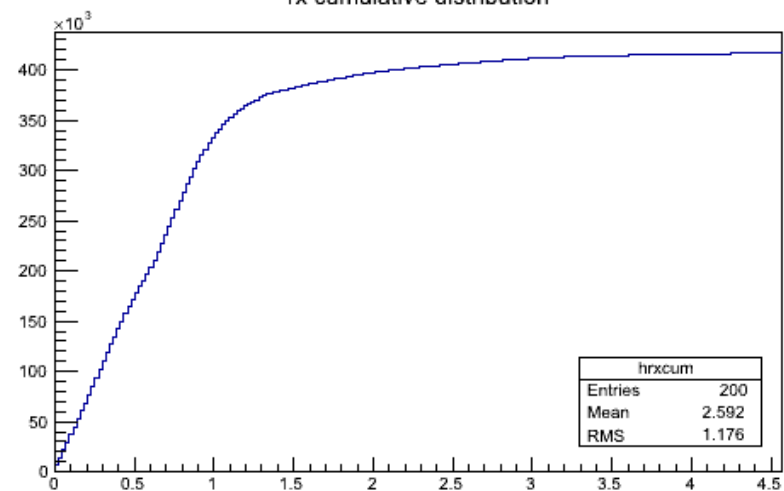
x distribution



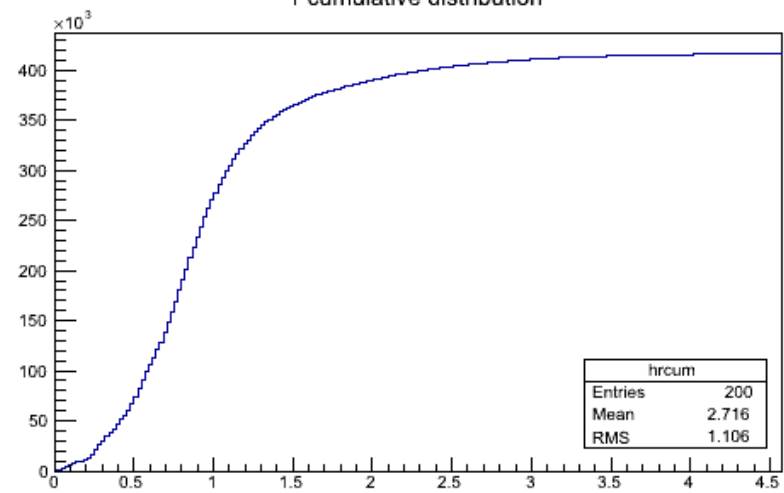
r distribution



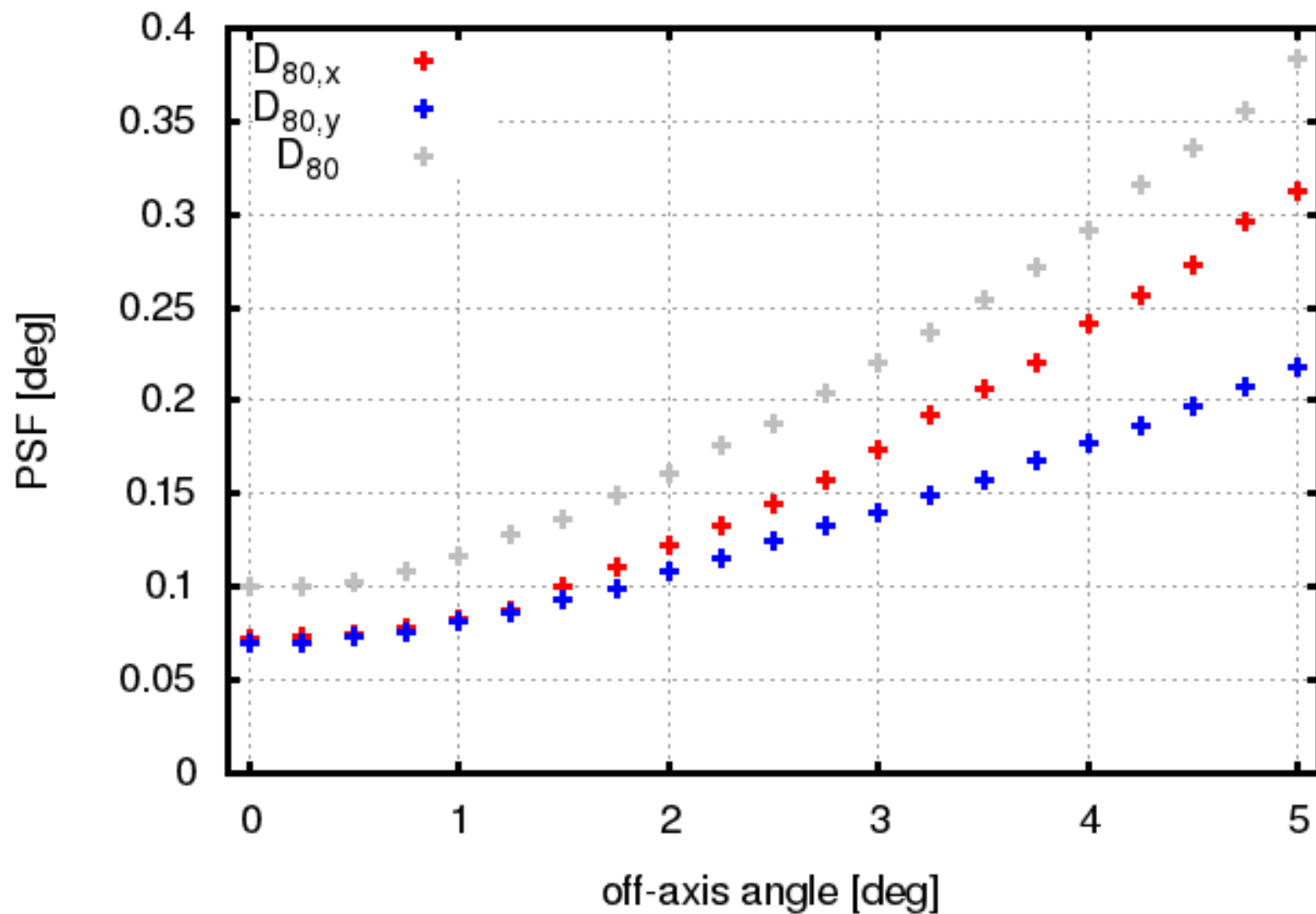
rx cumulative distribution



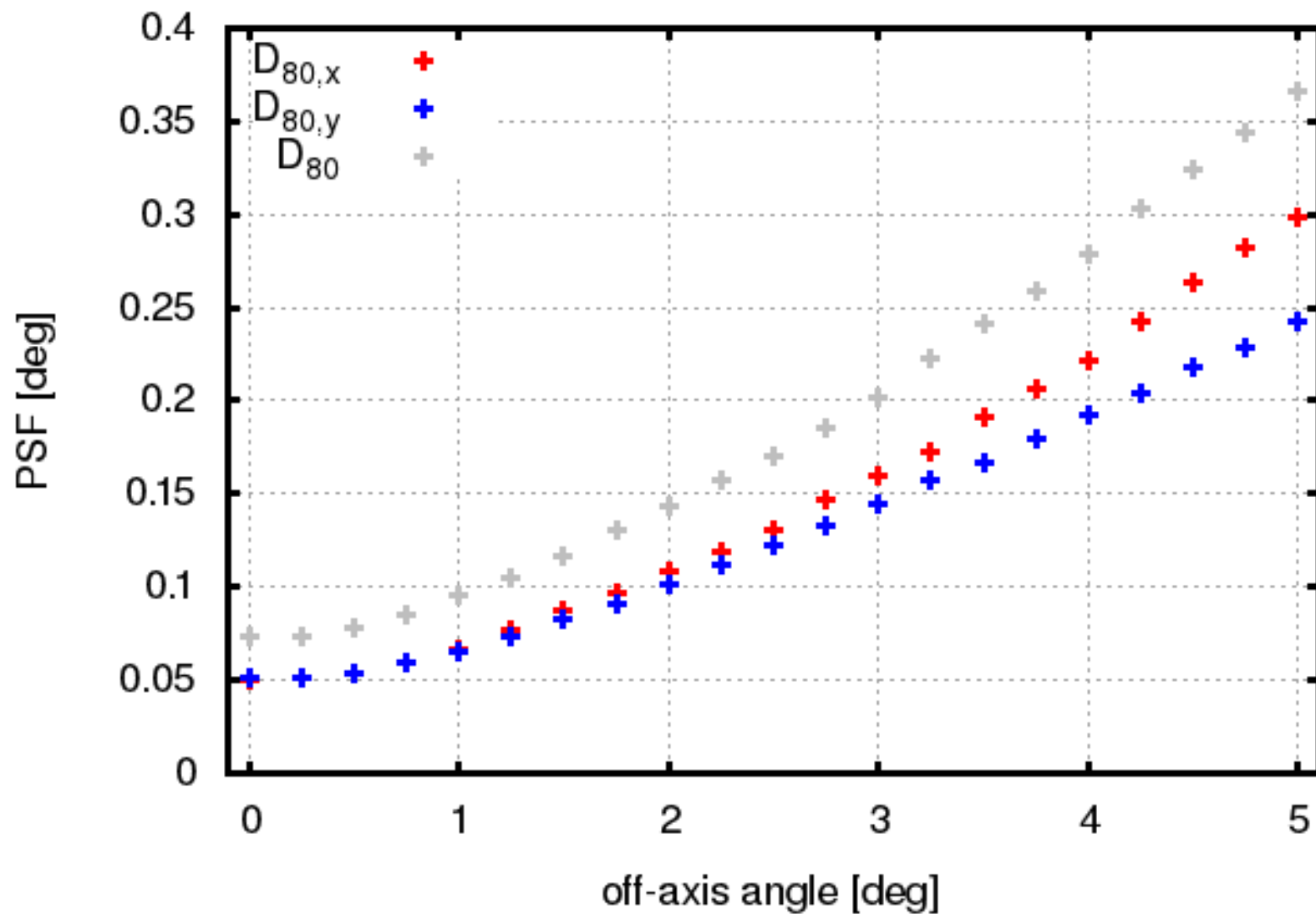
r cumulative distribution



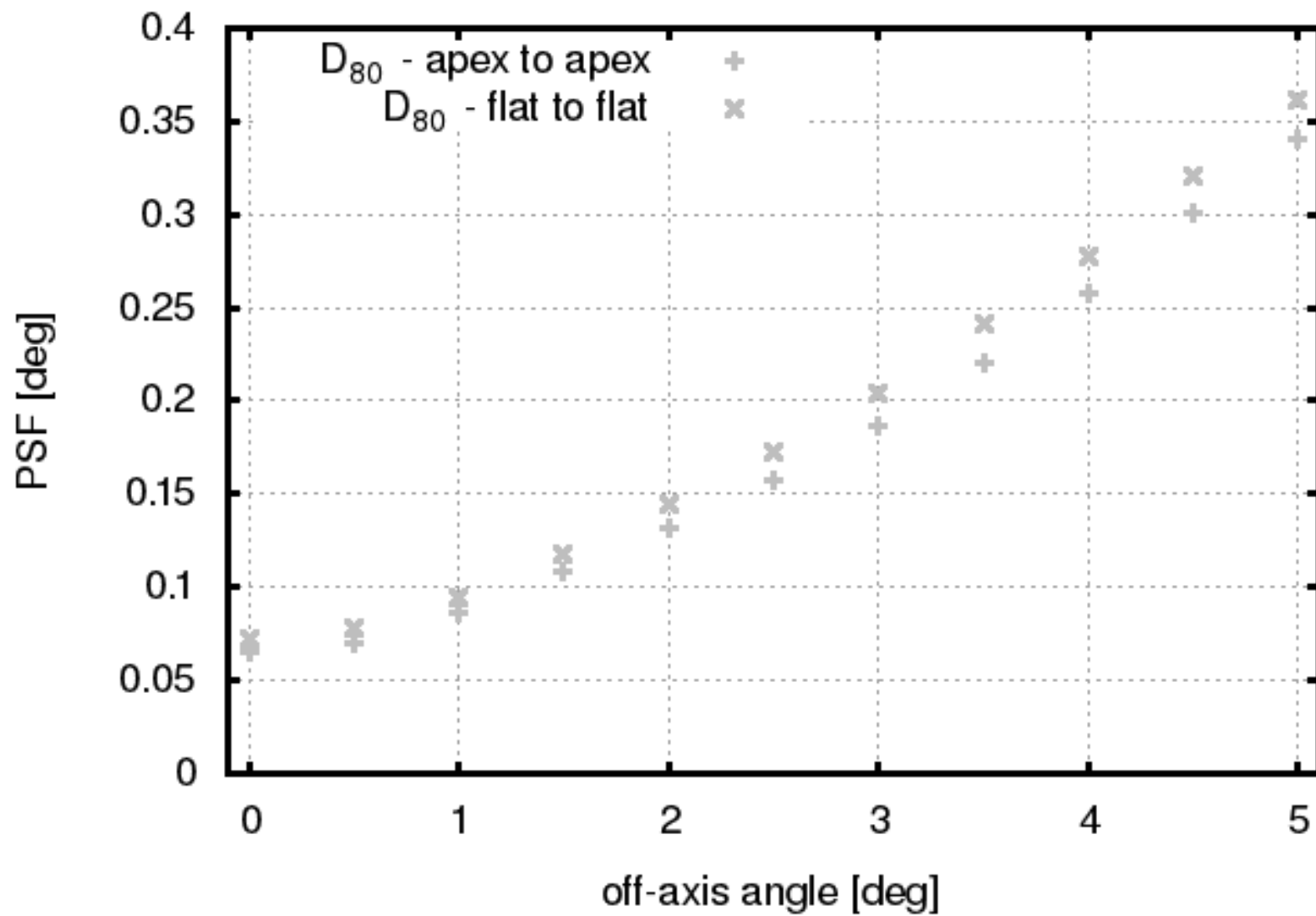
4m DC SST PSF - 85cm mirror tiles (2cm spacing)



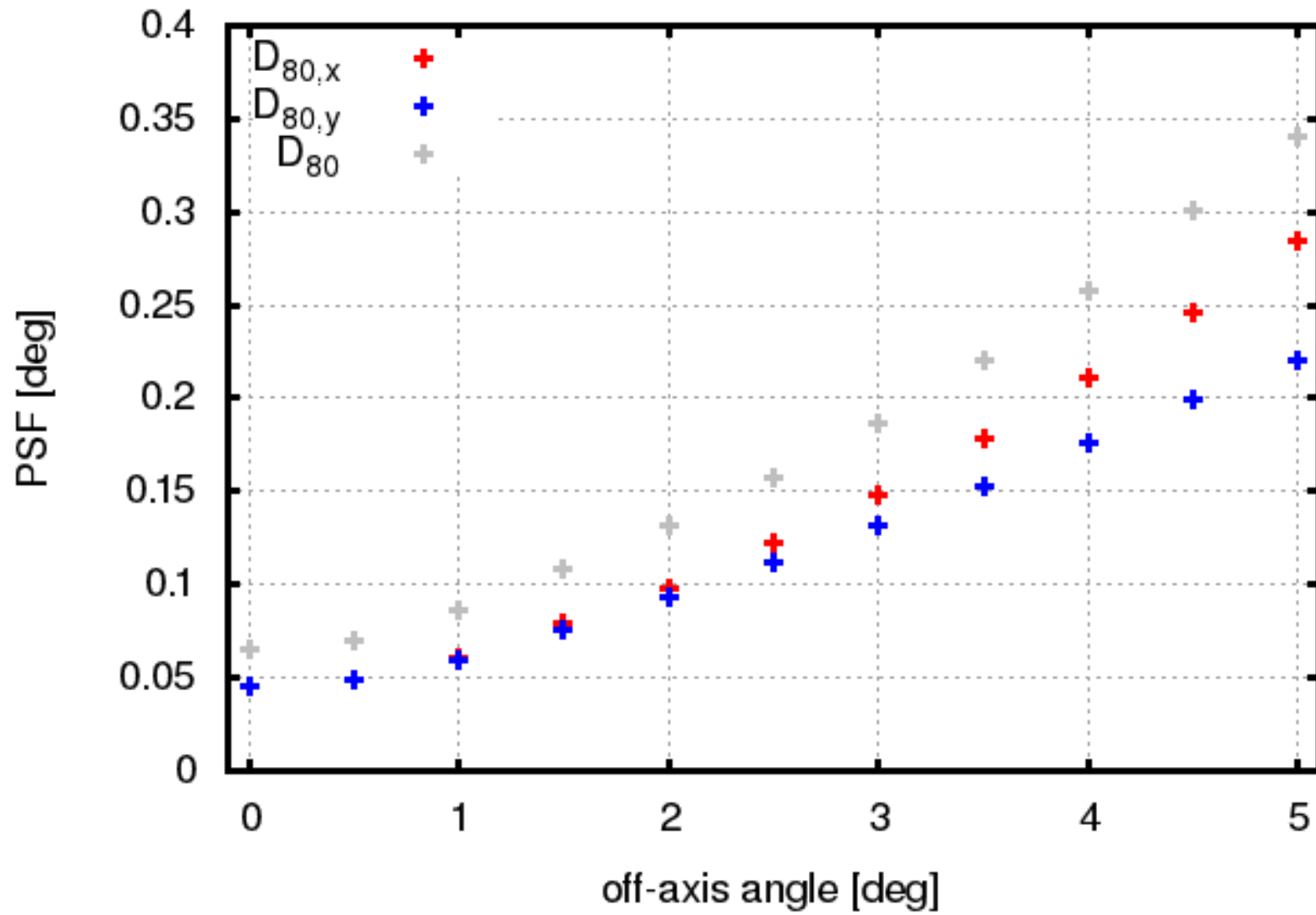
4m DC SST PSF - 61cm mirror tiles (2cm spacing)



4m DC SST PSF - 61cm mirror tiles (2cm spacing)



4m DC SST PSF - 60cm mirror tiles



24 mirror configurations: from 54cm to 100cm flat-to-flat (2cm spacing).

Mirror configuration files available in SVN repo:

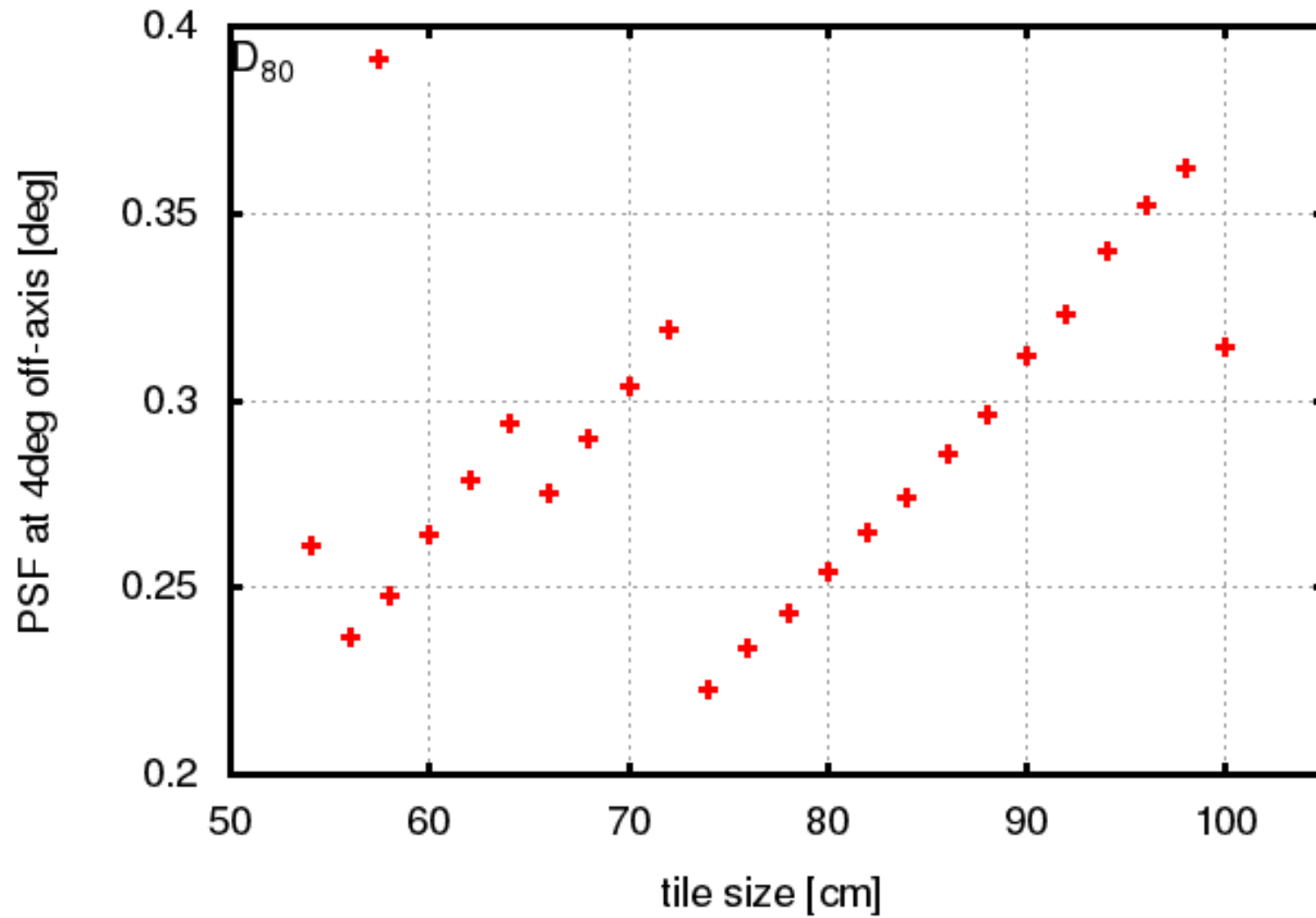
<http://ui.cta.camk.edu.pl/config/>

Filenames:

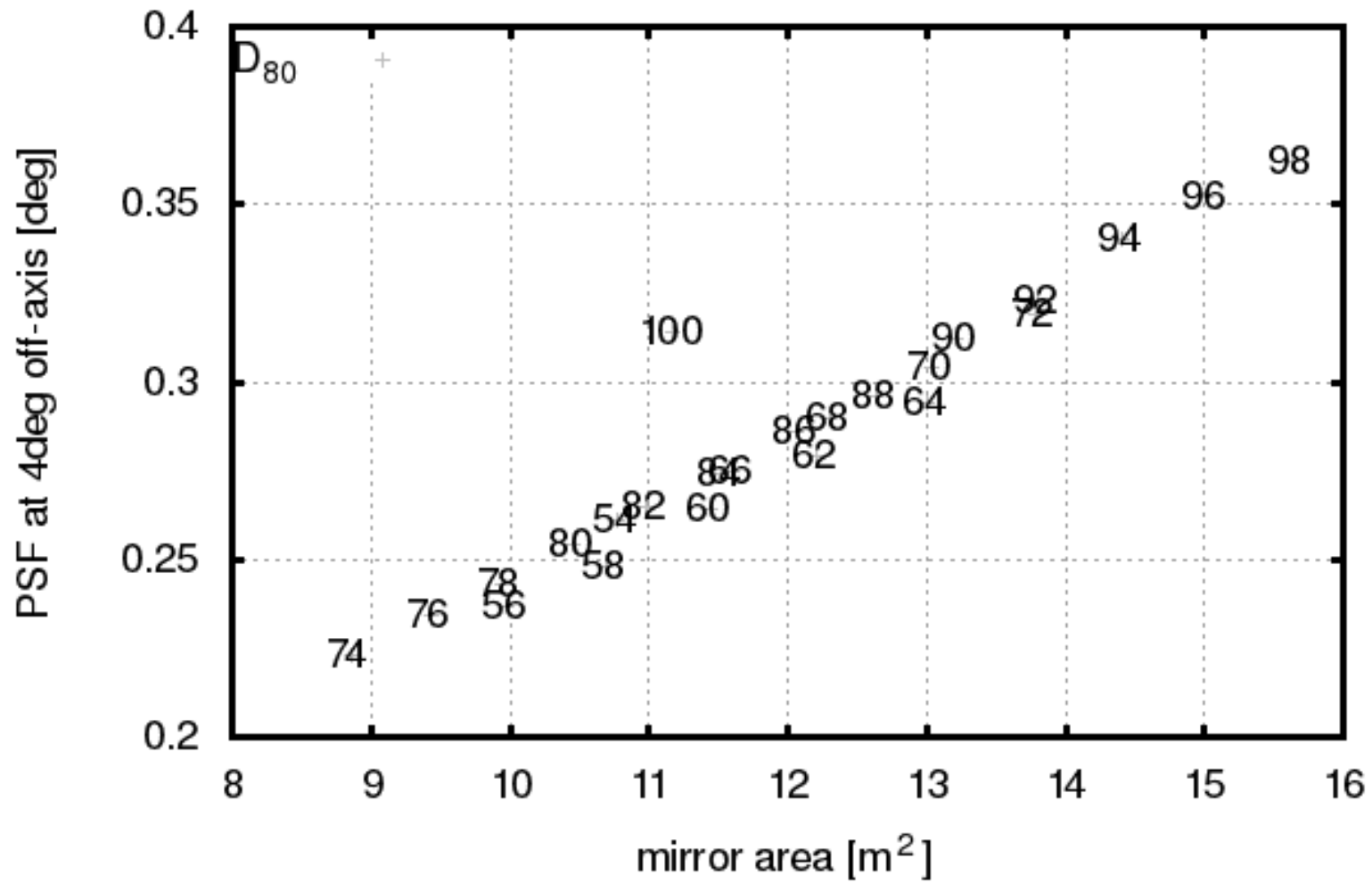
`mirror_DCSST_4m_78cm_sep2cm.dat`



4m DC SST PSF

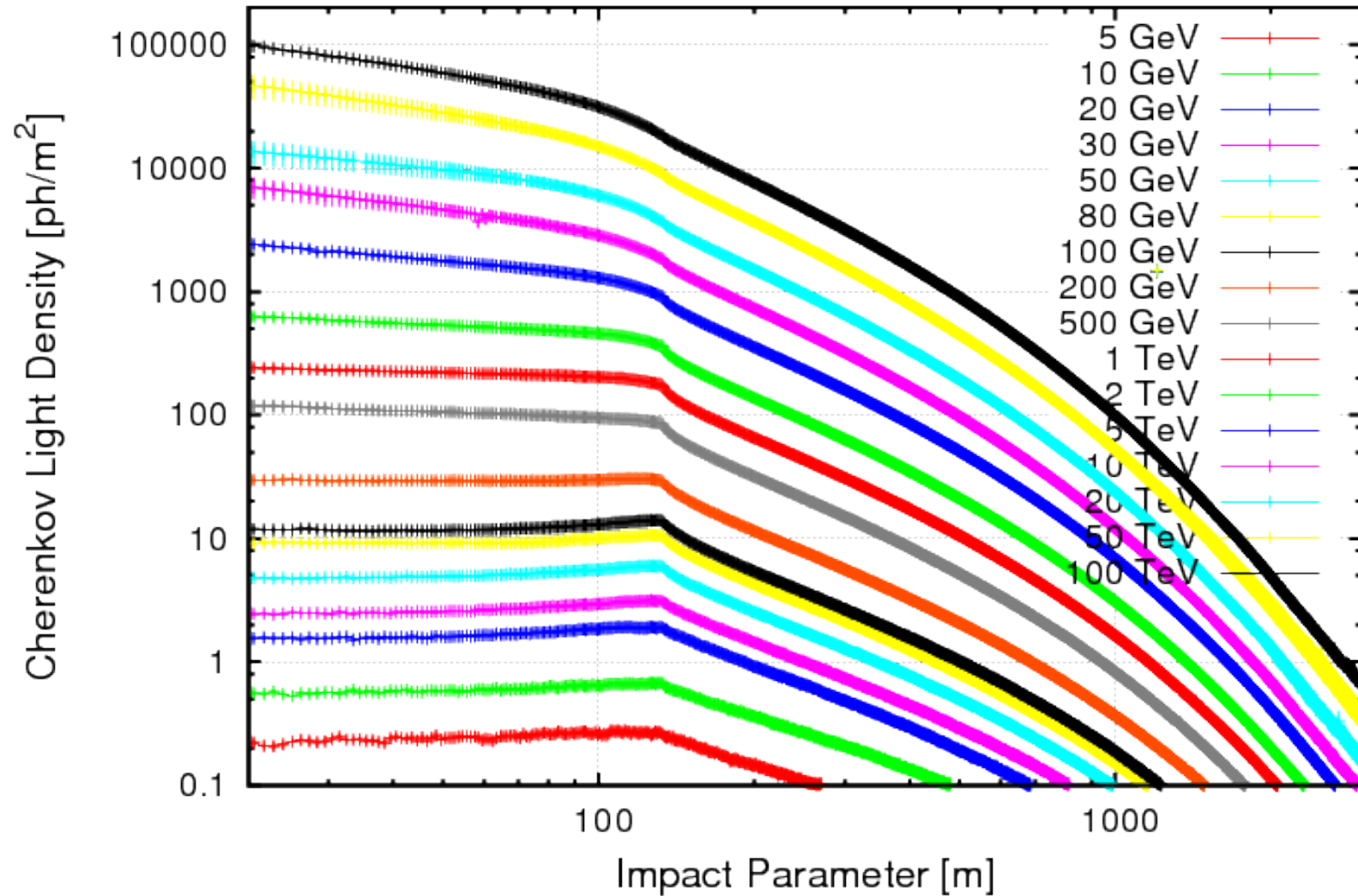


### 4m DC SST PSF



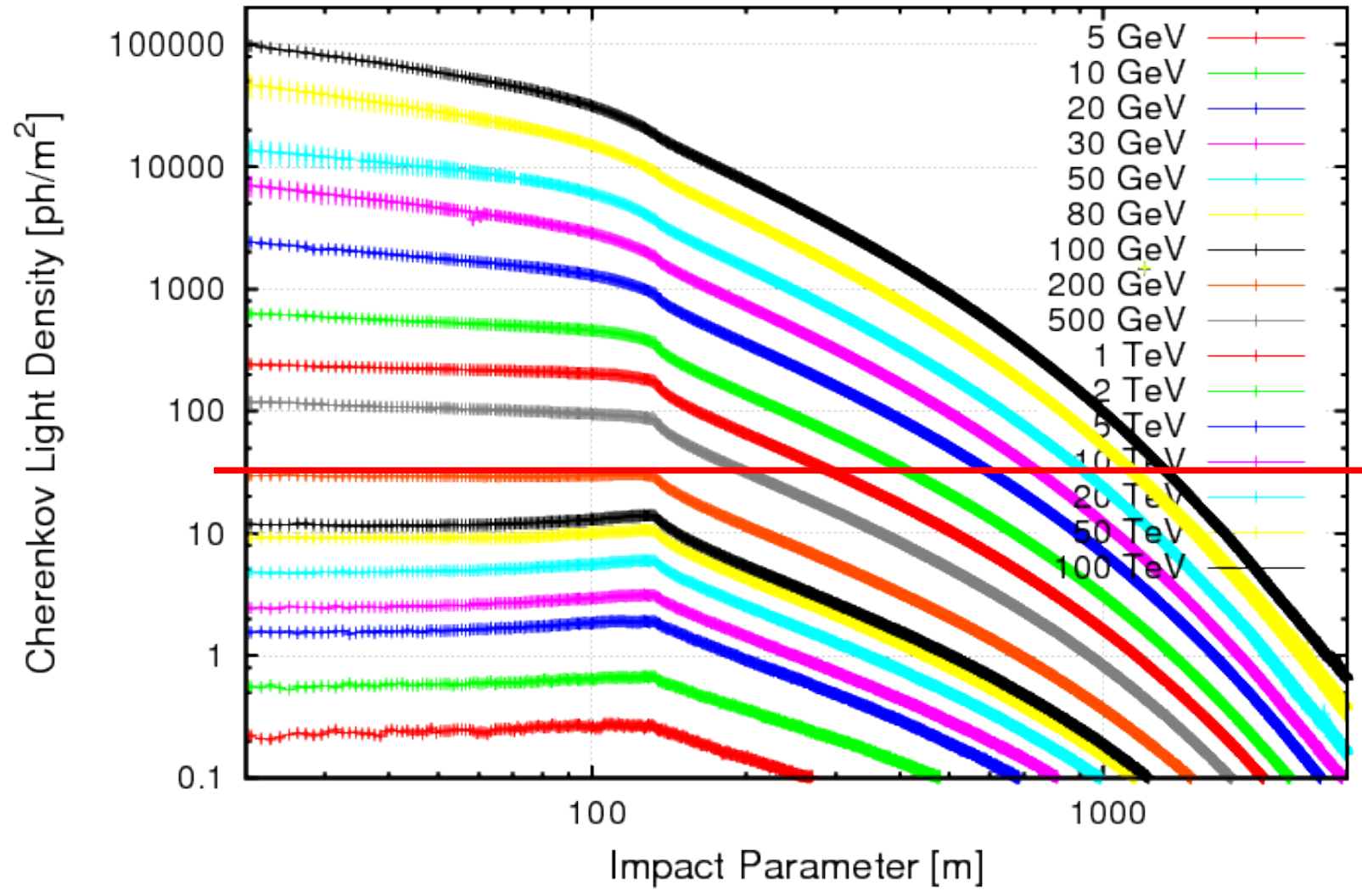
# Energy threshold

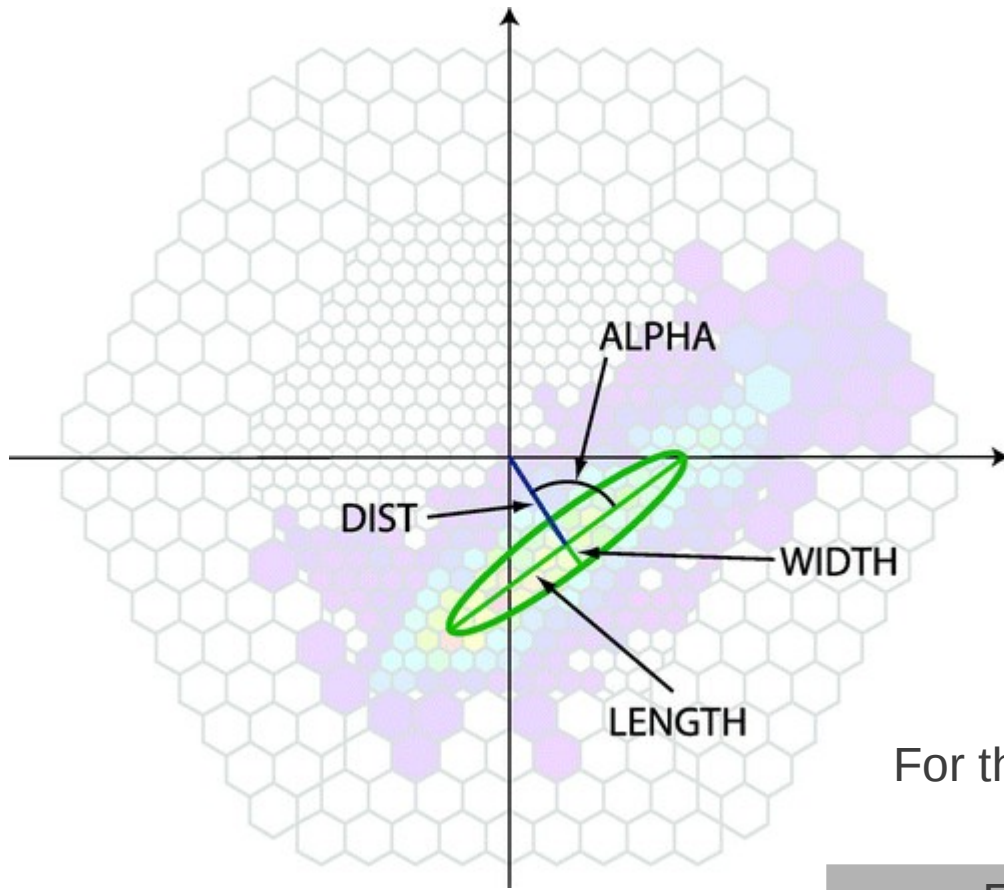
Cherenkov Light Distribution





### Cherenkov Light Distribution





For the shower maximum at 10km:

FOV [deg]	max core distance[m]
8	700
9	790
10	875