BF in GalSim

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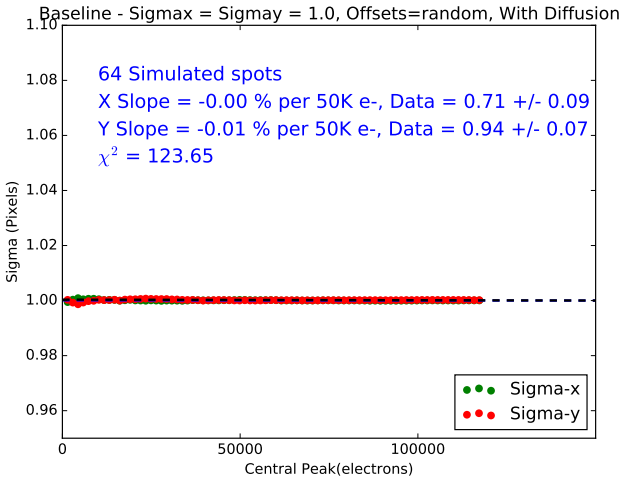
Summary

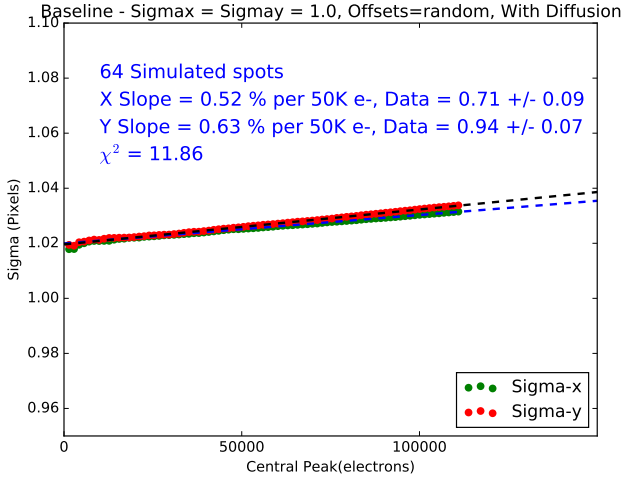
- I think we finally understand the discrepancy in BF slopes.
- The problem was not that GalSim was over-predicting the BF slopes, it was that the Poisson simulations were underpredicting the BF slopes for a given amount of pixel distortion.
- I believe the older Poisson BF simulations were not fully converged.
- In the latest revision of the Poisson_CCD code, I made two significant changes, both of which improved convergence:
  - A new faster way of calculating the electron density in the pixel region (reference 'Electron Methods' in the Poisson_1Oct17.pdf slides).
  - Changes to the code to speed convergence of the multi-grids (reference 'Verifying Convergence' in the Poisson_1Oct17.pdf slides).
- BF slopes now agree well. Also, the incorporation of diffusion in GalSim agrees with the Poisson code.
- Still need to incorporate the latest pixel distortion files into GalSim. this will be done this week.
- Thanks to Simona, Kristen, and Mike for their assistance in getting to the bottom of this.

BF Slope Comparisons

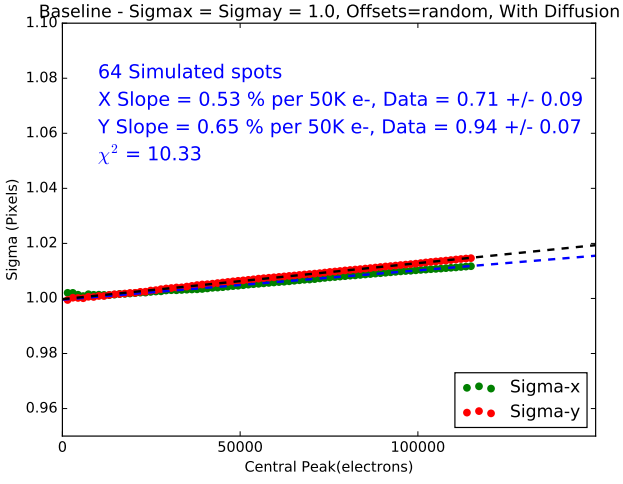
GalSim - No B-F Effect



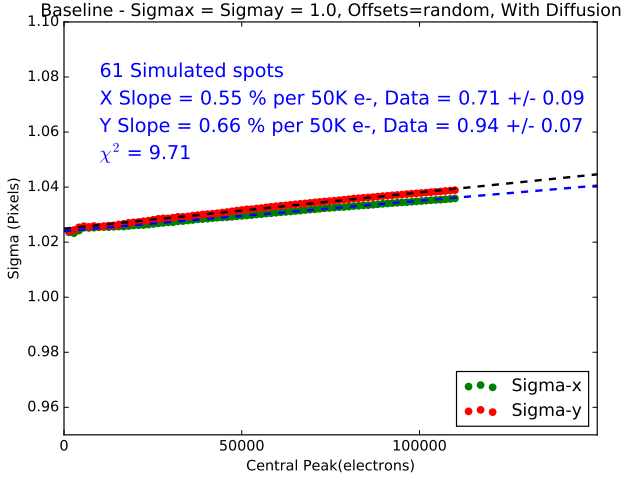
GalSim - With B-F, With Diffusion



GalSim - With B-F, No Diffusion

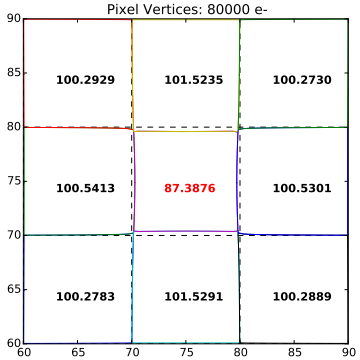


Poisson - With B-F, With Diffusion

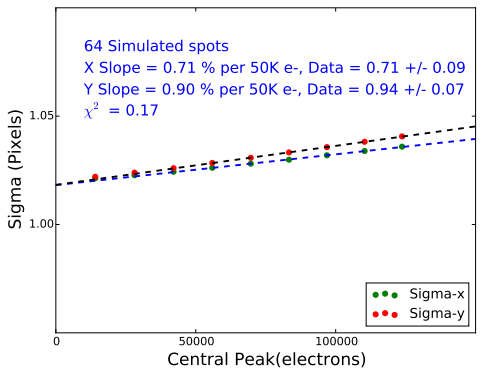


Comparisons

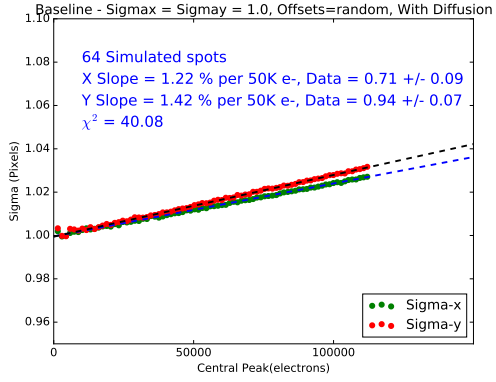
Distortions-Hole17



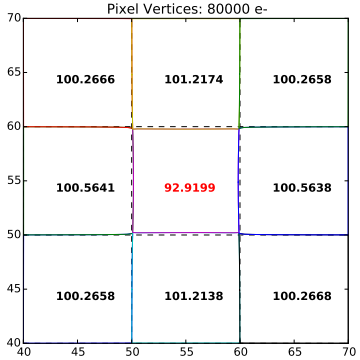
Poisson Slopes-Hole17



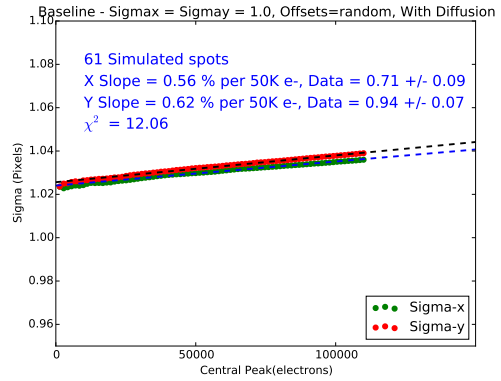
GalSim Slopes-Hole17



Distortions-Hole20



Poisson Slopes-Hole20



GalSim Slopes-Hole20