

“ASTRONOMICAL” ERROR IN MEAN ELLIPTICITY

galaxy density: $n_g = 30$ / squarcmin

field solid angle: $\Omega = 0.25$ square degree

number of galaxies: $30 \times 0.5 \times 3600 = 27,000$

rms intrinsic galaxy ellipticity: $\sigma_{gal} = 0.3$

error in mean: $0.3/\sqrt{54,000} = 0.002$

ASTIGMATISM INDUCED ELLIPTICITY

geometric argument

defocus: $1.5 \mu\text{rad} \Leftrightarrow 0''.3$ (WFIRST λ/D)

astigmatism: $3 \text{ nanorad} \Leftrightarrow 3 \text{ nm}$ (WFIRST D)

image ellipticity: 0.002