

BGS SV target selection

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***BGS SV superset* target selection criteria**

- *magnitude limit*
- *bright object mask*
- *star-galaxy separation*

magnitude limit

The current strategy for the BGS adopts two priority tiers:

Priority 1: $r \leq 19.5$, estimated surface density of 800 deg^{-2}

Priority 2: $19.5 < r \leq 20$, estimated surface density of 600 deg^{-2} .

for the BGS superset, push the magnitude limit to $r < 20$.

bright object mask — DR5

DECaLS DR5 Bright stars

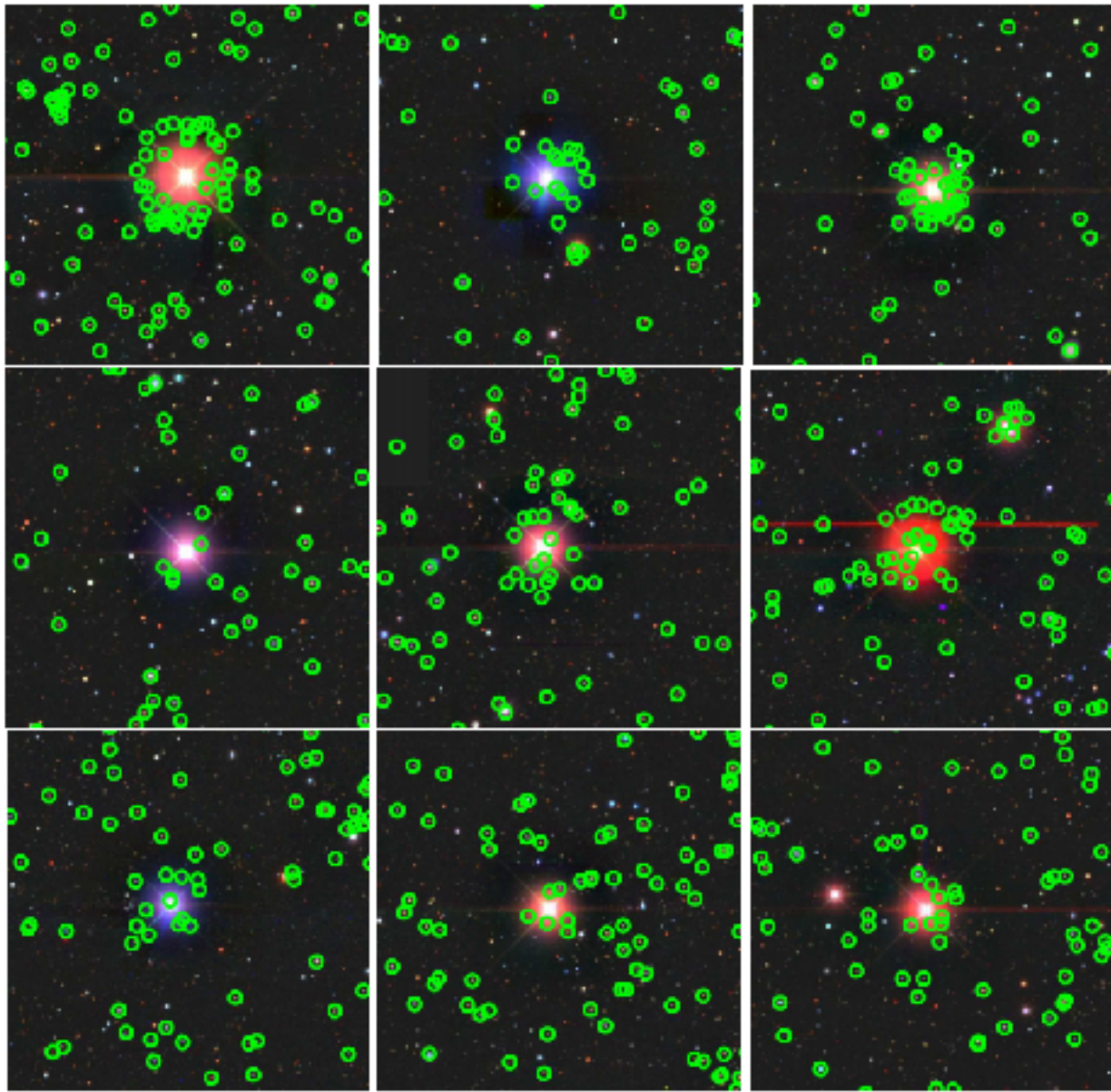


Figure 3.7: Optical images from DECaLS DR5 of the 9 brightest stars from the sample area. The green circles are the BGS objects from DECaLS DR5 with $r \leq 20$. The length of the box is 10 arcmin.

SDSS Bright stars

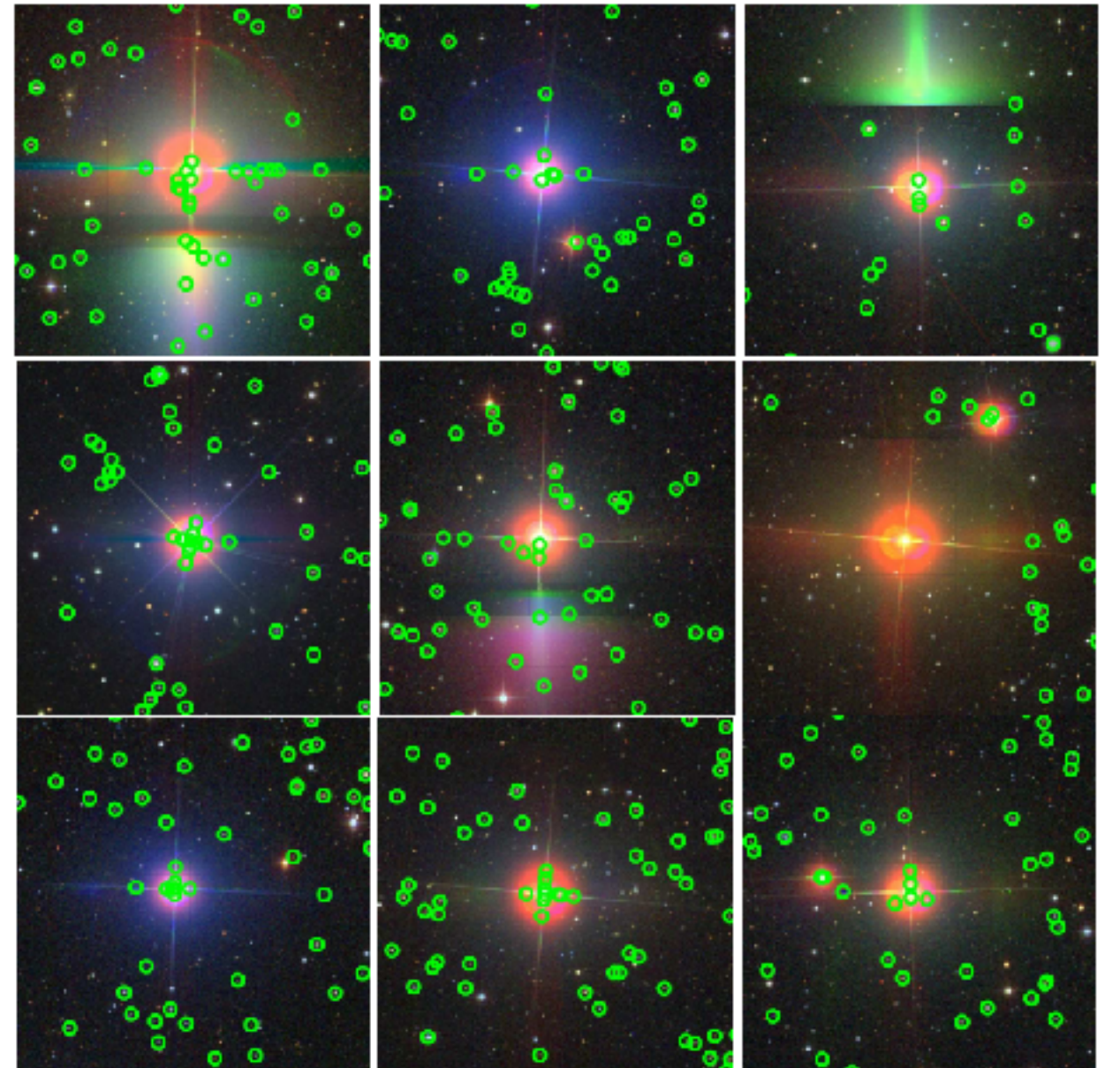
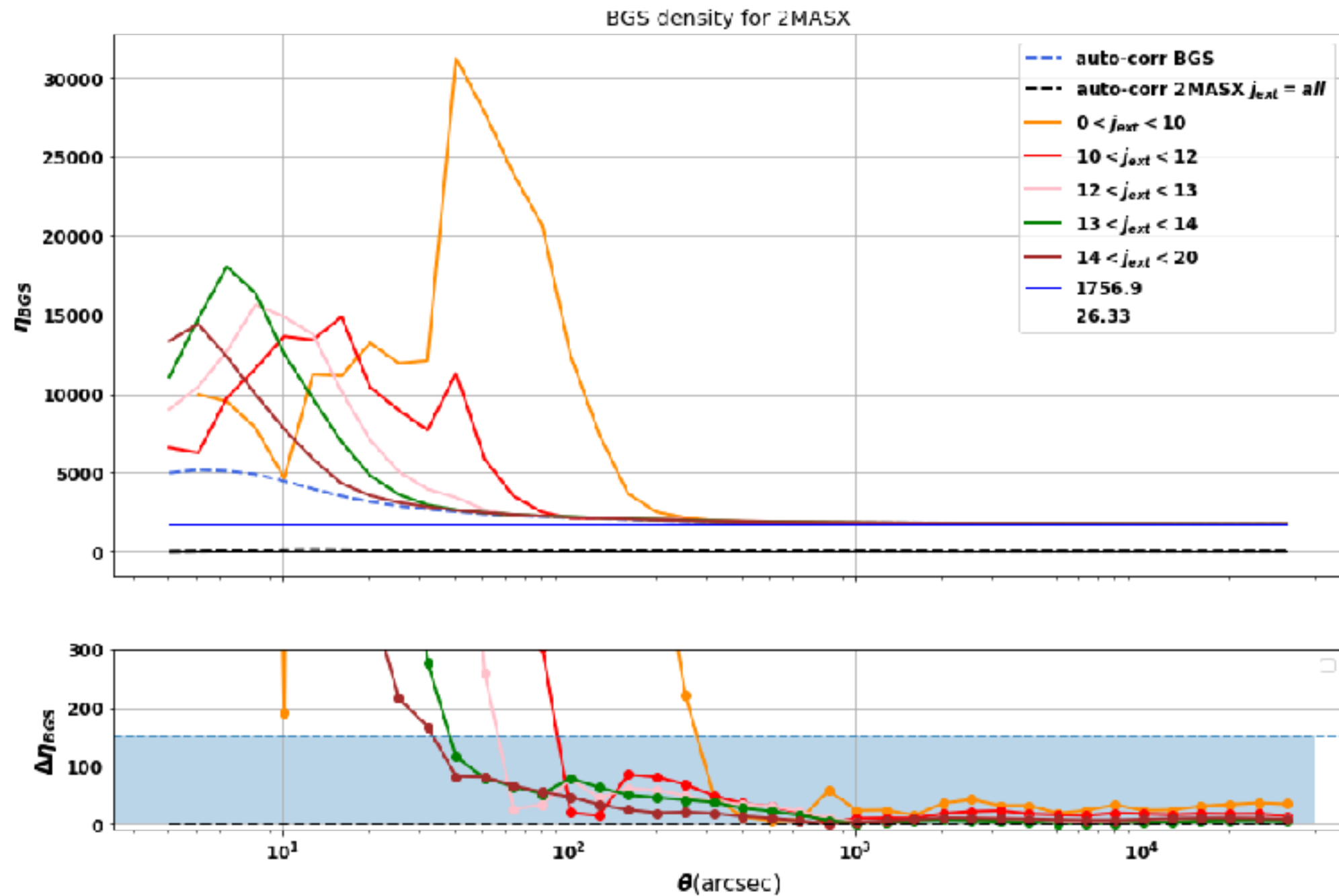


Figure 3.8: Optical images from SDSS of the 9 brightest stars from the sample area. The green circles are the BGS objects from SDSS with $r < 20$. The length of the box is 10 arcmin.

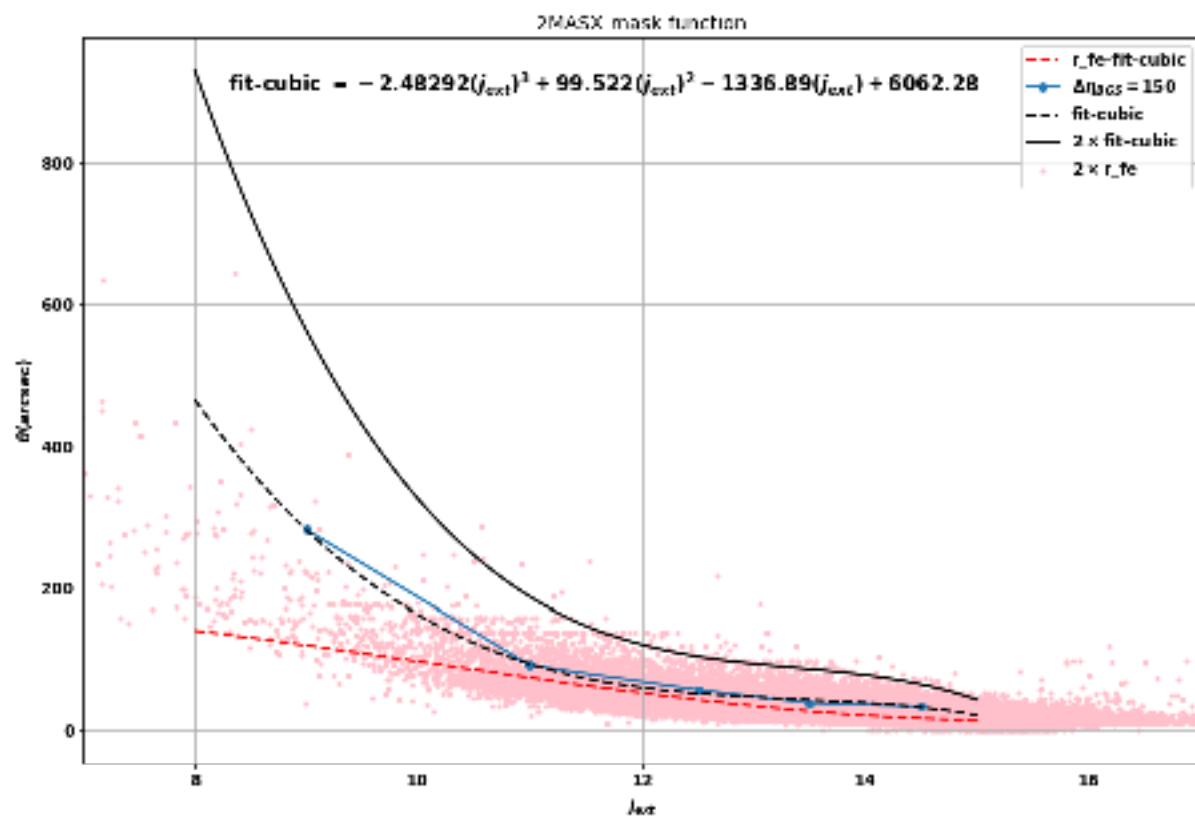
bright object mask — DR5

Cross-corr Twomass-DECaLS DR5 BGS

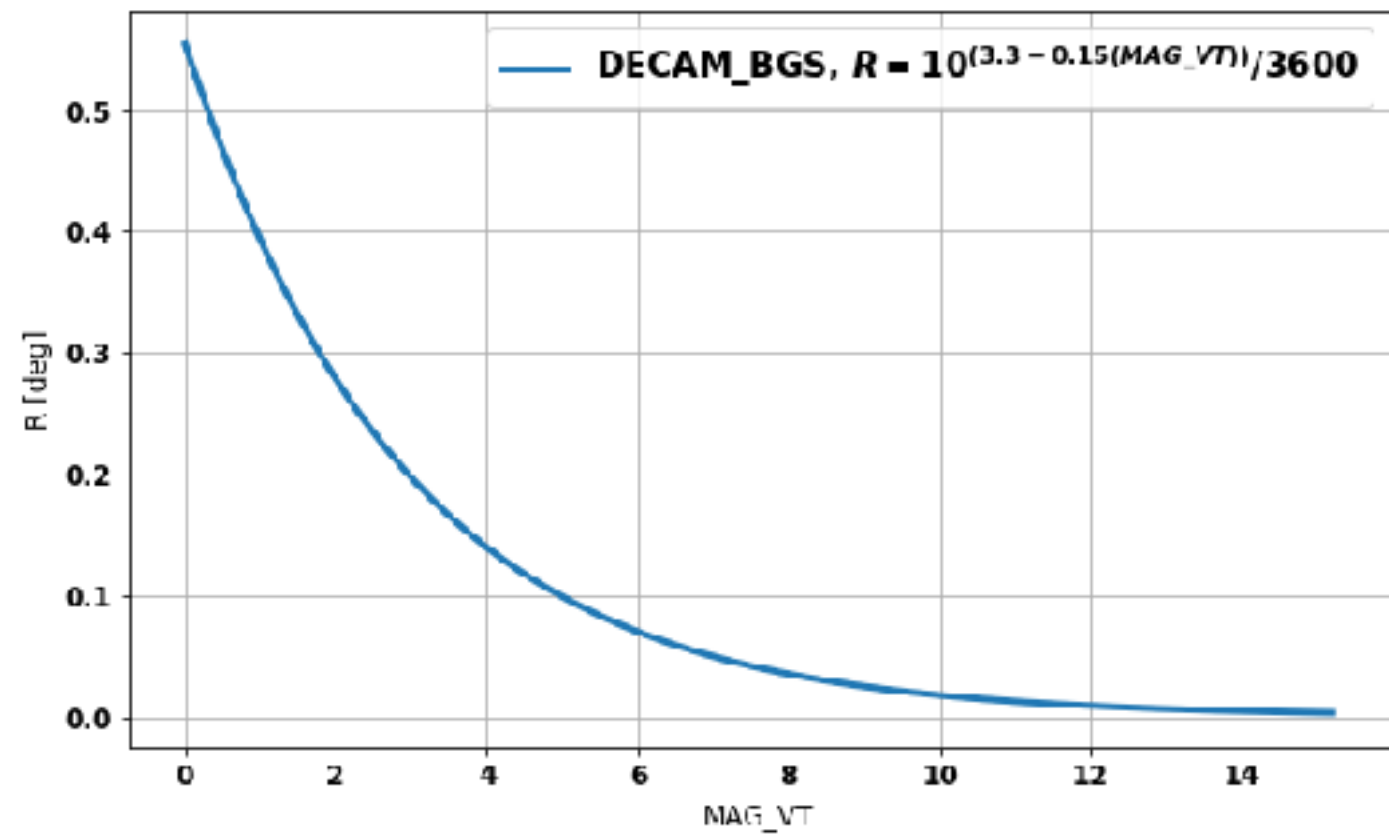


bright object mask — DR5

Mask functions for twomass galaxies

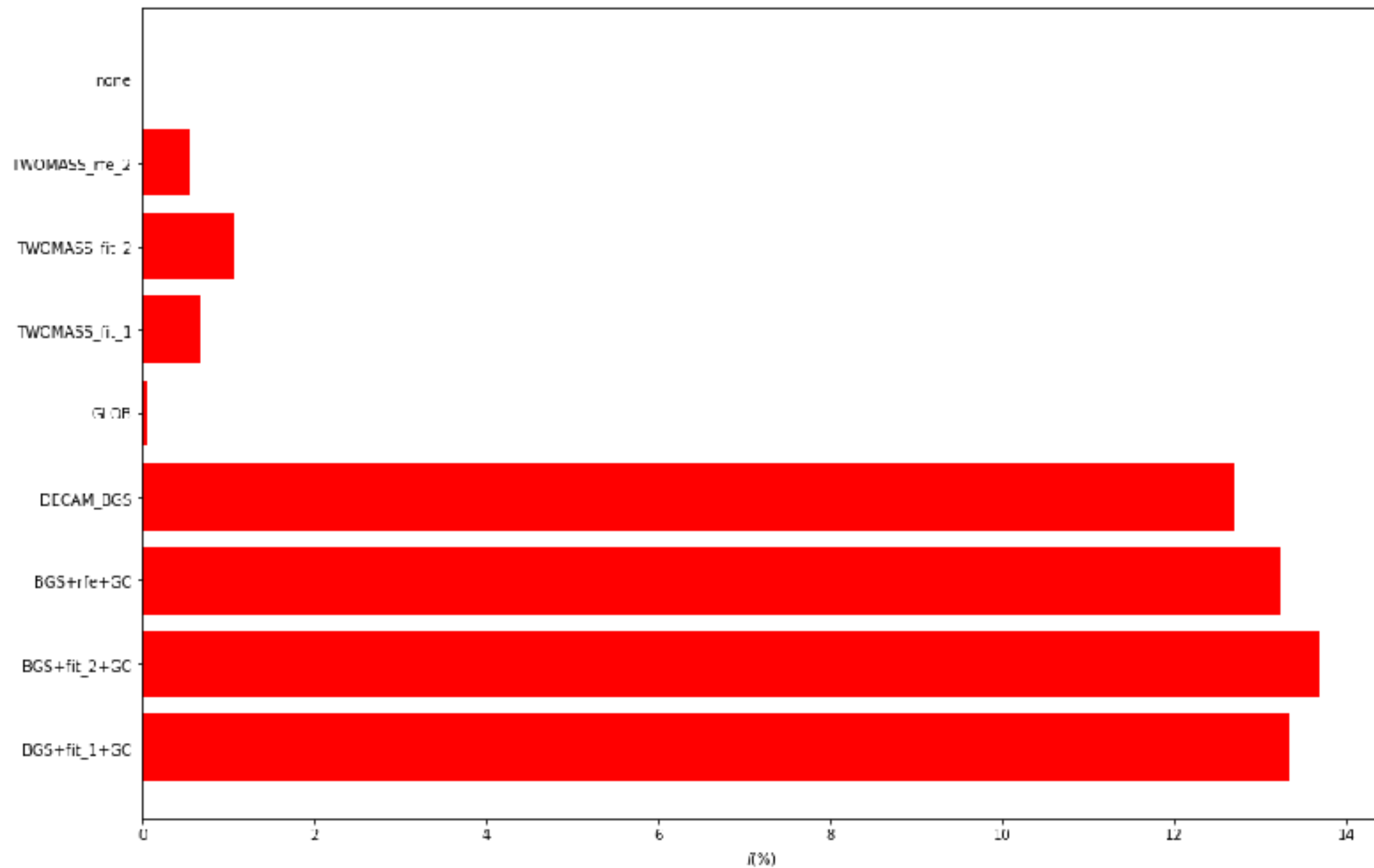


Mask function for Tycho2 Stars



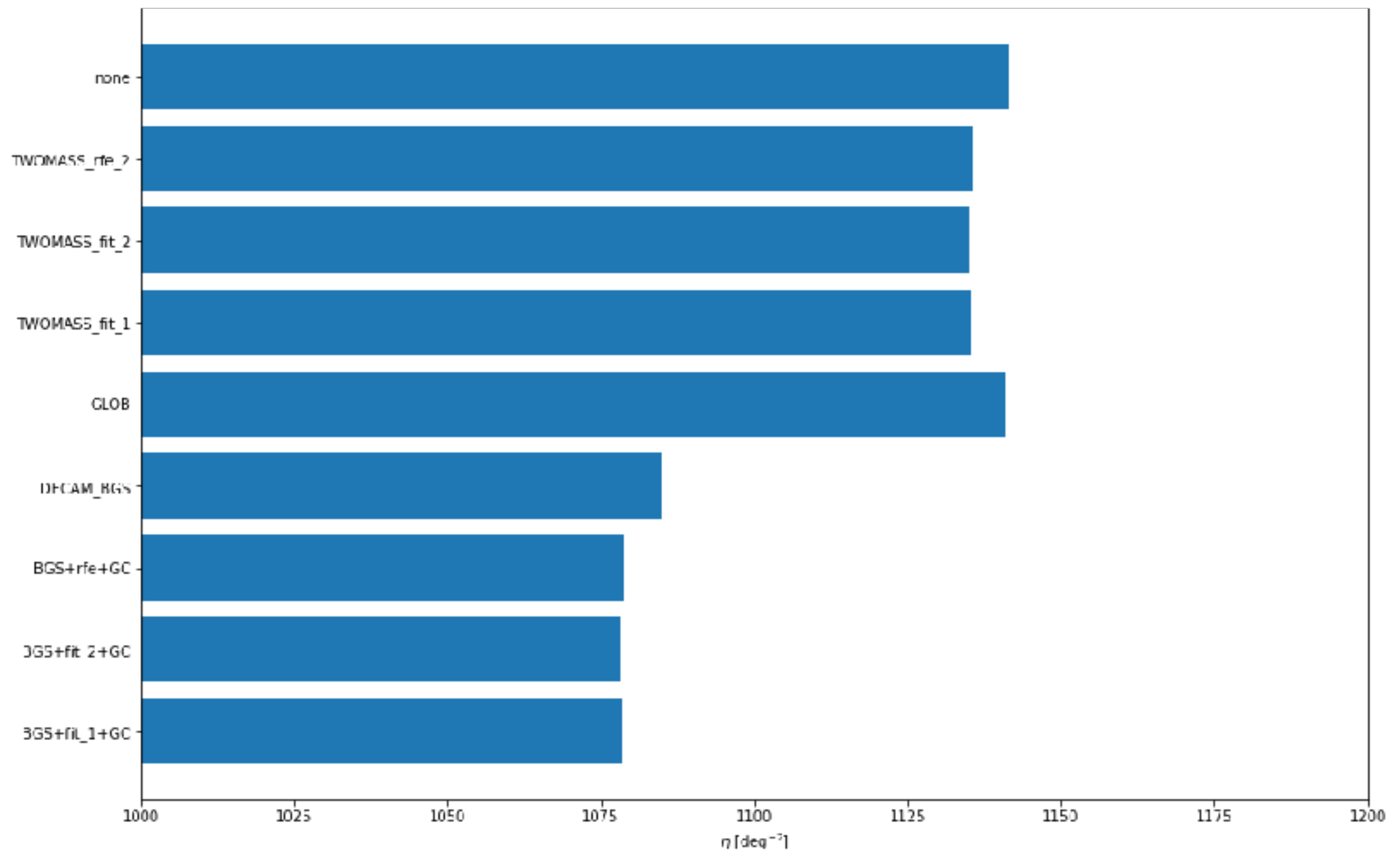
bright object mask — DR5

Rejected objects by each mask



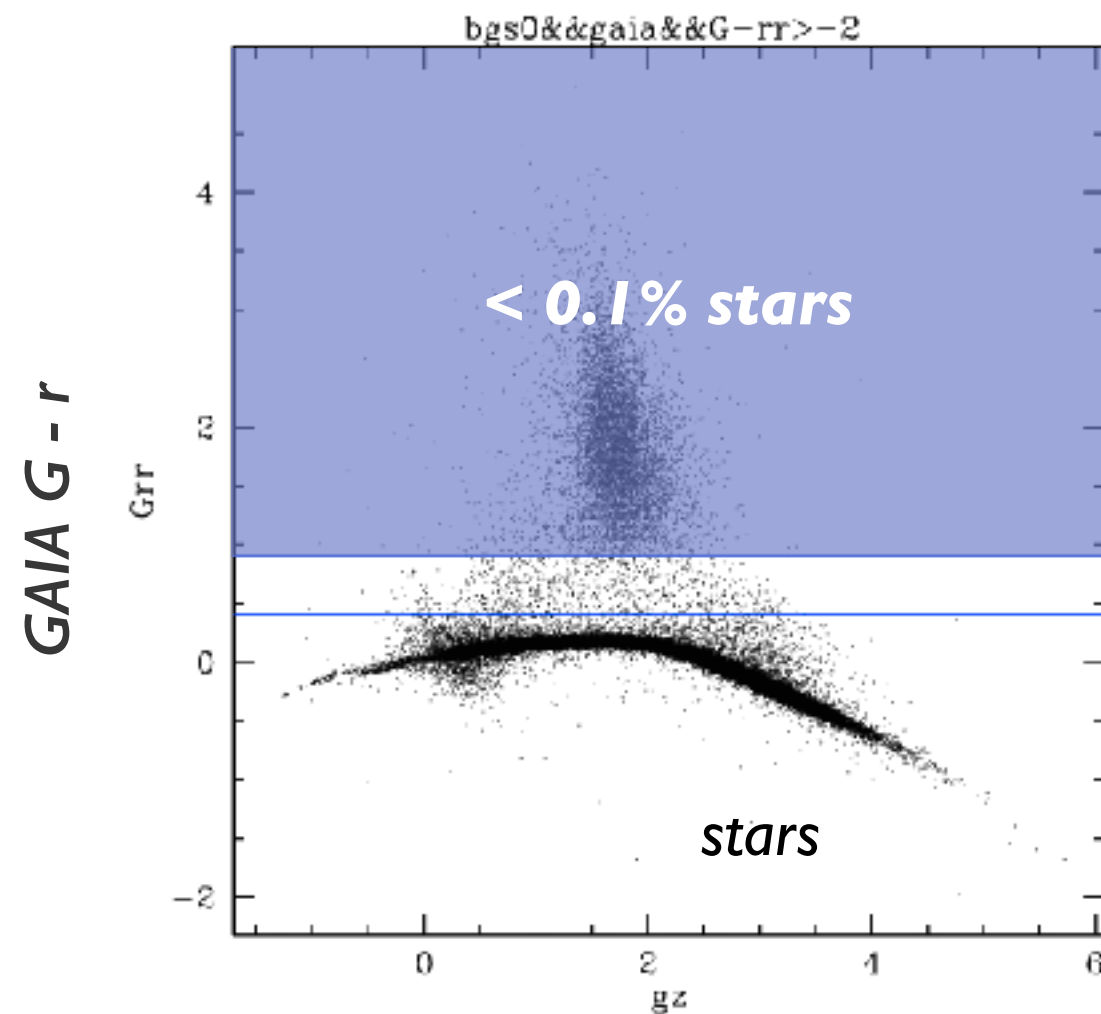
bright object mask — DR5

Number density



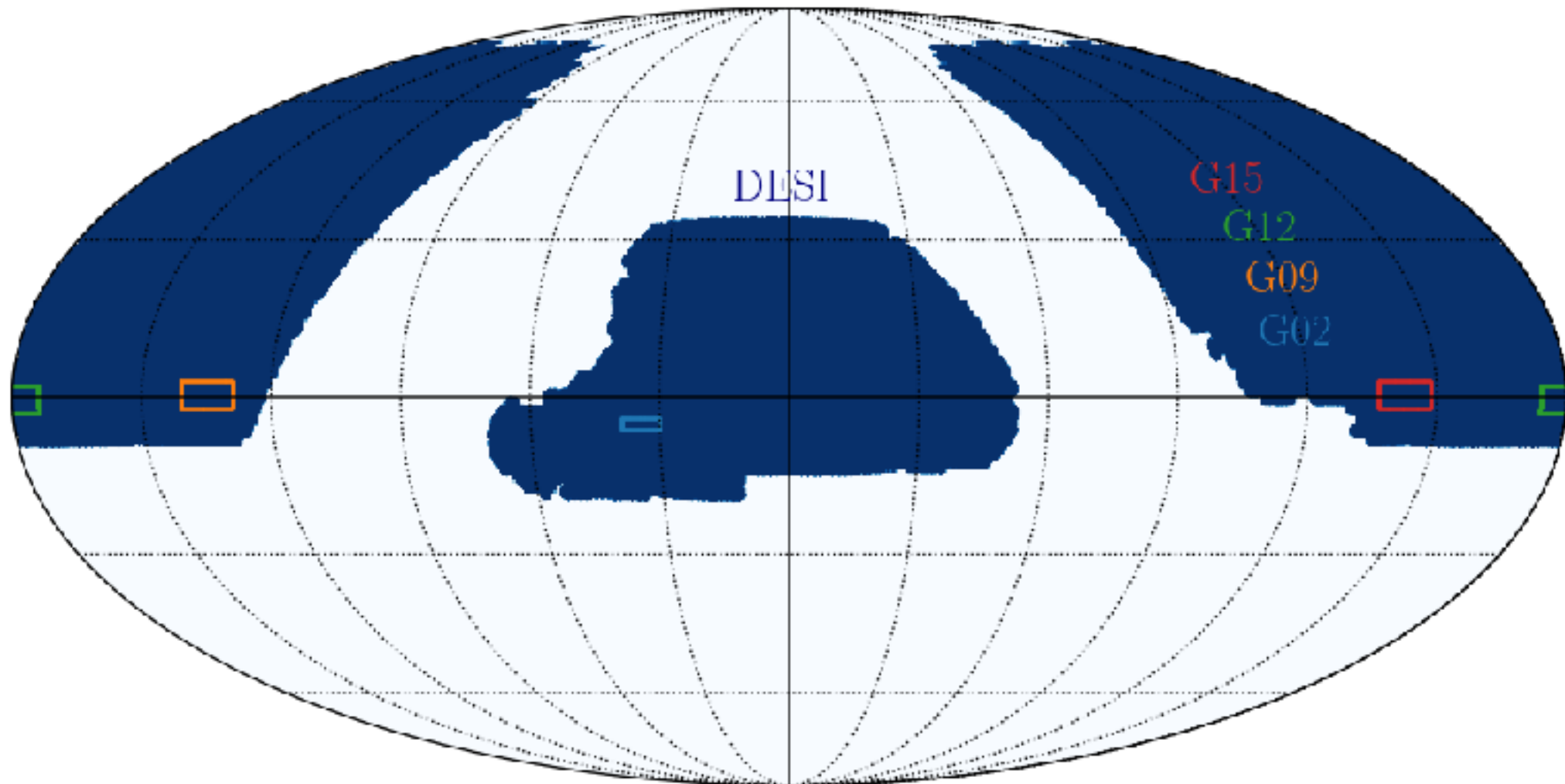
star-galaxy separation

tractor TYPE != "PSF" \longrightarrow using **GAIA**



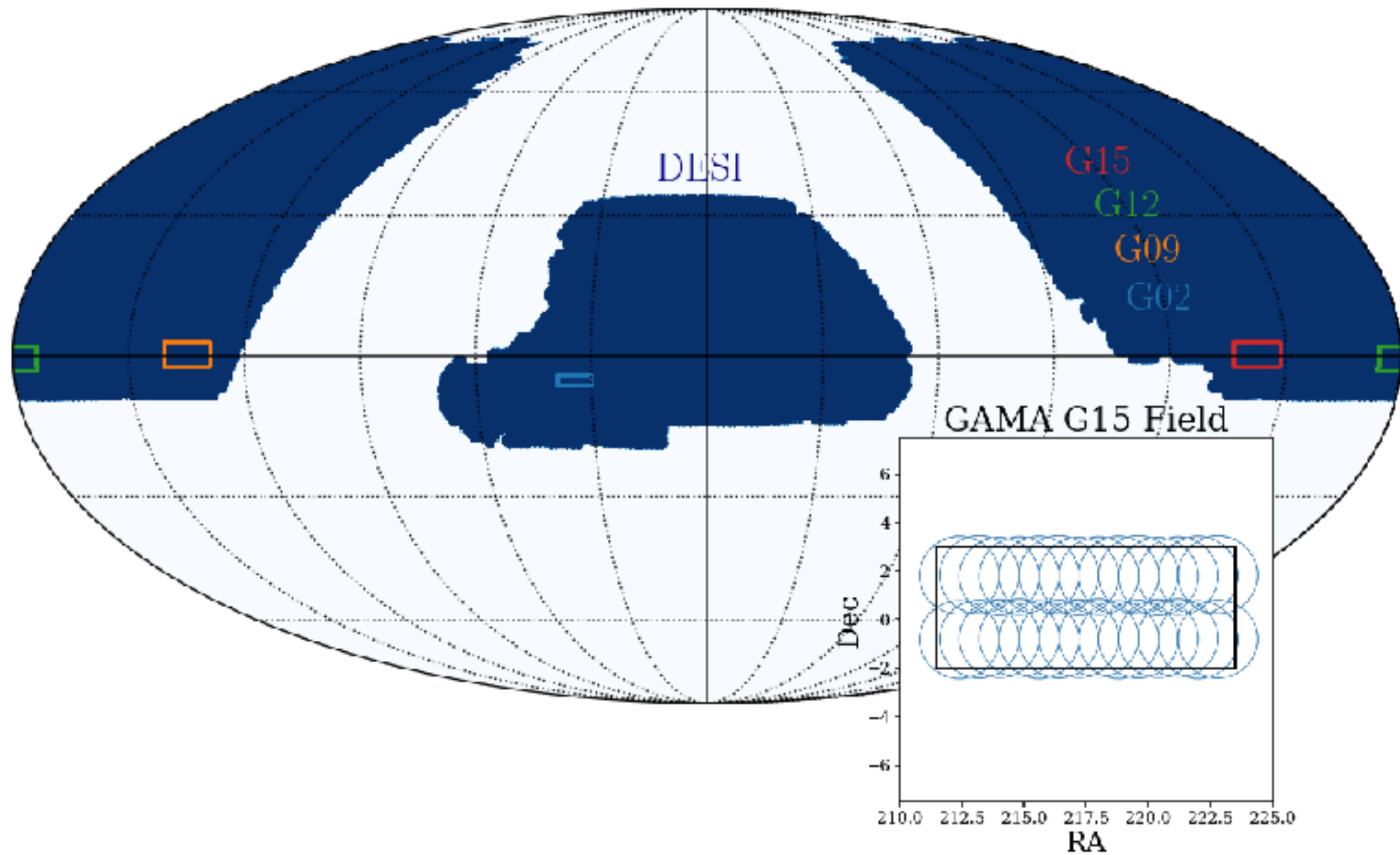
for the BGS superset, allow 10% of objects classified as stars to be targeted to test star-galaxy separation

BGS survey validation



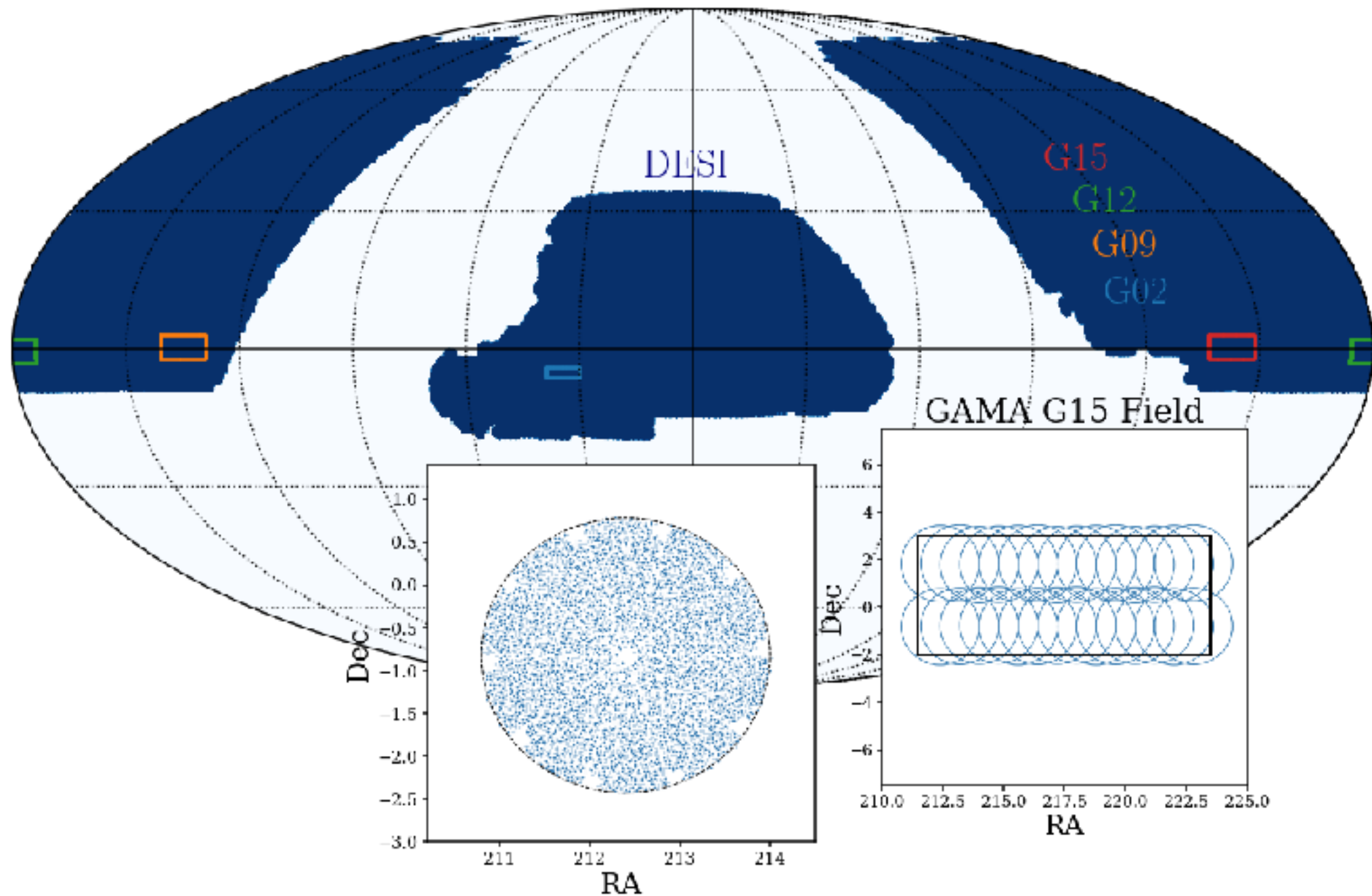
GAMA fields — spectroscopic truth tables

BGS survey validation



tiling by Kyle Dawson, David Schlegel

BGS survey validation



DECaLS DR5 targets by Adam Myers

fiberassign by Jaime Forero-Romero https://github.com/forero/fiberassign_sv/