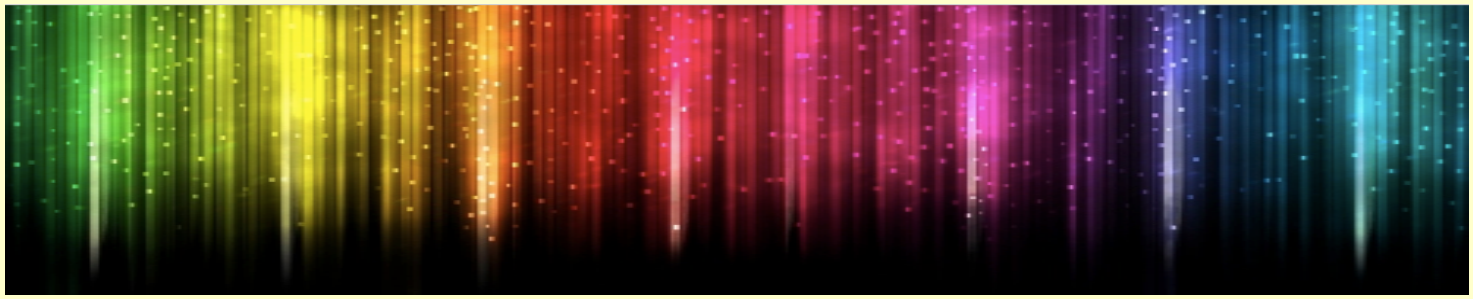
The New Target Search ("Kepler ColorsTable")



Our Group:

Dorothy Fraquelli

Bernie Shiao

Myron Smith

Randy Thompson

Acknowledgments:

- *Galex Team*
- *Phil Lucas (UKIRT)*
- *Greiss/Steeghs (INT/KIS team)*
- *Everett/Howell/Kinemuchi (UBV)*
- *Sloan Project (SDSS/DR9)*

Magnitudes & colors for our KeplerColors Table

- ✓ 2MASS (JHK mags)
- ✓ UK_IRT (J' mags)
- ✓ New GALEX (in last delivery: NUV only)
- ✓ Everett/Howell/Kinemuchi – UBV
- ✓ Kepler-INT-Survey ("KIS"), Part 1
- ✓ SDSS/DR9 (this week)

To be delivered (dates uncertain):

- KIS /Part 2 (ugrizHα)
- panSTARRS - *griz,y*, W

Purposes:

1. Increase number of GO proposer targets.
2. Increase what we know about Kepler targets.*
   - o OB stars, Kepler Core study, M type stars, galaxies
   - o Better spectral, luminosity types (bracket Balmer jump)
   - o Spectral Energy Distributions (available UVOIR surveys)
3. Post-Kepler mission studies:

Make this a "Hubble Deep field" for Galactic star populations research for many years (range of Galactic latitudes: 5.1-21.7°).

*Province of Kepler Stellar Properties Working Group

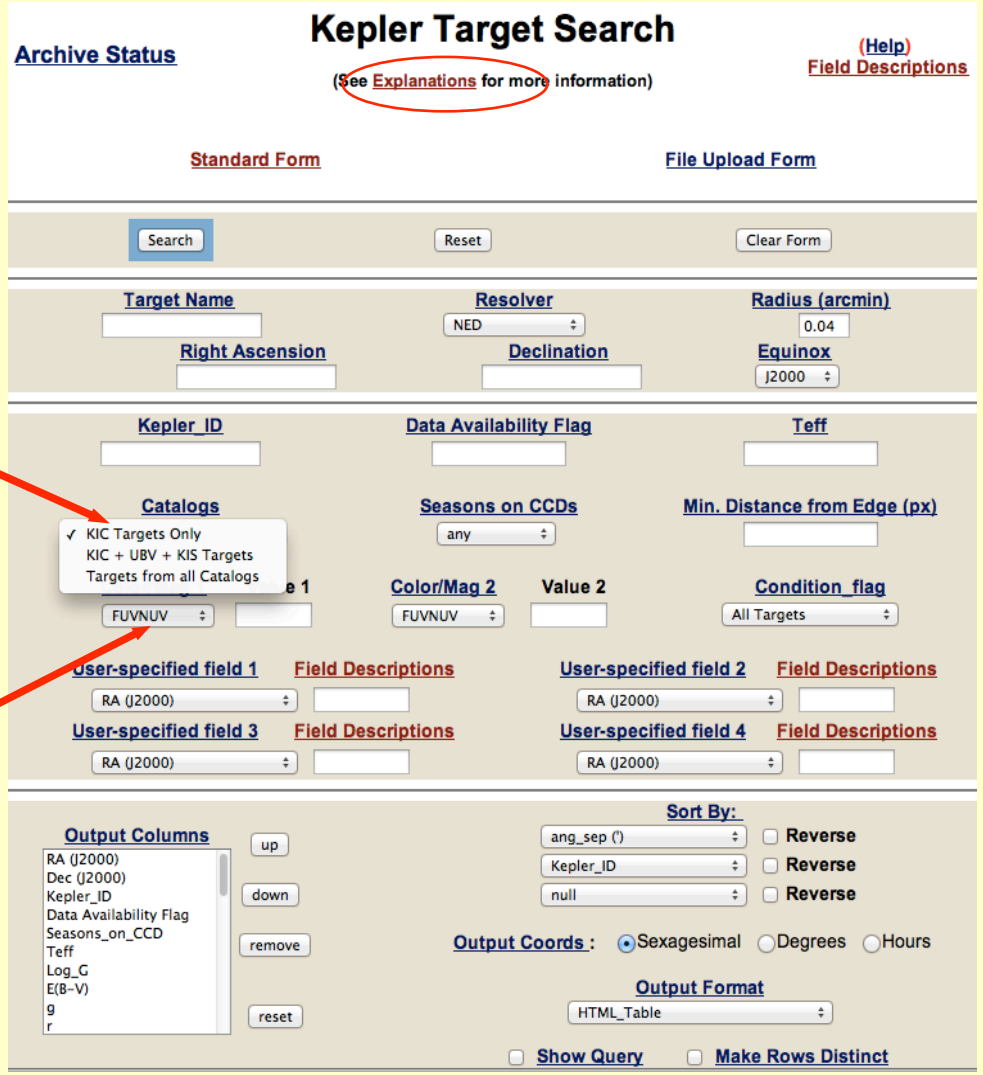
Target Access tools at hand

1. New ("enhanced") MAST Target Search form.
2. Greatly expanded CasJobs queries table.
   "keplerObjectSearchWithColors" table in CasJobs:
   http://mastweb.stsci.edu/kplrcasjobs/
   includes new help files, sample queries, etc.

Catalog menu options:

- "KIC" only (default)
- Optical
  (add GALEX, KIS, UBV)
- All catalogs, including UKIRT

Filter on values of many color combinations



New Target Search form

Kepler Target Search Explanations

The Kepler Target Search interface provides access to a 12.5 million row table created by MAST by joining entries from the Kepler Input catalog (KIC) with the Kepler Characteristics table (CT) and merging these with "associated" entries from the United Kingdom Infrared Telescope (IRT) project, the USNOb catalog, GALEX, the Kepler Isaac Newton Telescope Survey (KIS), and the Everett KPNO (UBV) survey. The search interface allows users to find targets within the Kepler field of view (FOV) and allows searches on magnitudes, colors, and other parameters for both KIC and associated non-KIC targets.

This is the recommended interface for potential guest observers to locate possible targets for observation. GO proposers however should check on the target's position by either (or both) looking to one of our posted FFI images and seeing if it is on a chip, and (2) confirming this with the GO office. The links below provide more detailed information on the creation and contents of this database.

Colors and Magnitudes (Explanations & Caveats)

This page describes the magnitudes added from the various catalogs as well as results from comparing the various magnitudes and colors as a function of magnitude.

Matching and false Identifications

The procedure for associating a catalog object to a KIC object is described here. Issues with false identifications are also discussed.

Associated Non-KIC Targets

After associating catalog entries with KIC entries, a second matching process was performed to identify additional non-KIC targets which may be within the Kepler FOV. This procedure resulted in the addition of roughly 8 million new targets and is described here.

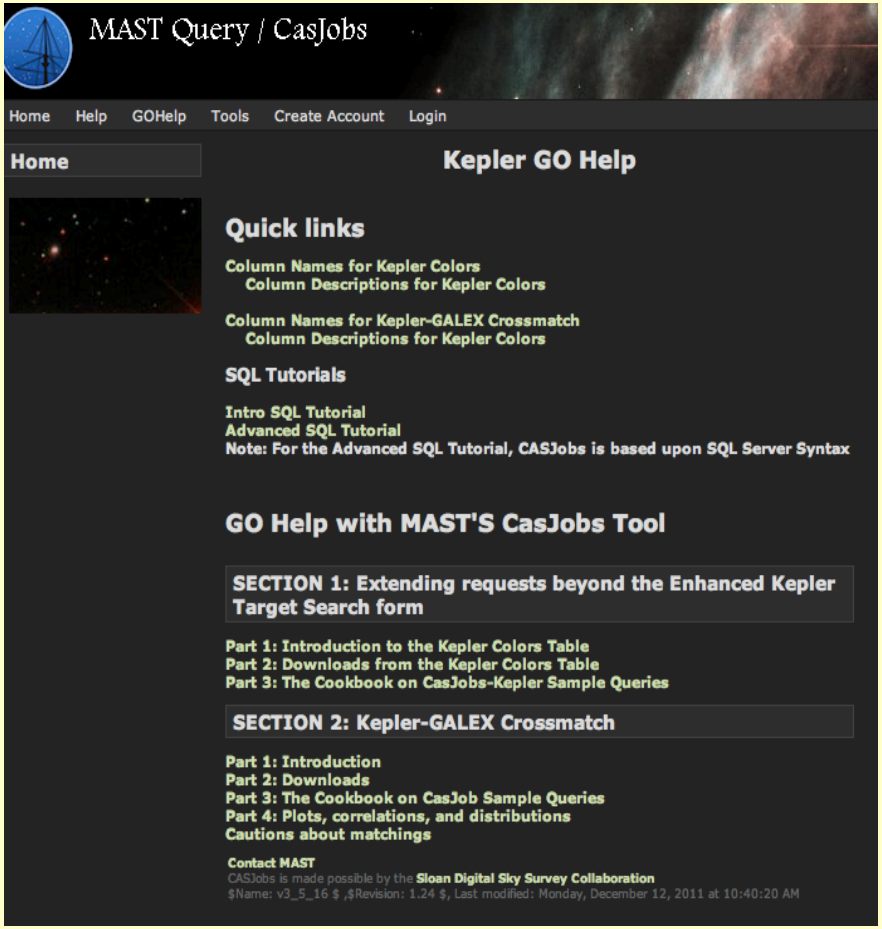
Detailed correlations between magnitudes and colors in their different systems

Perils of false and mis-matching

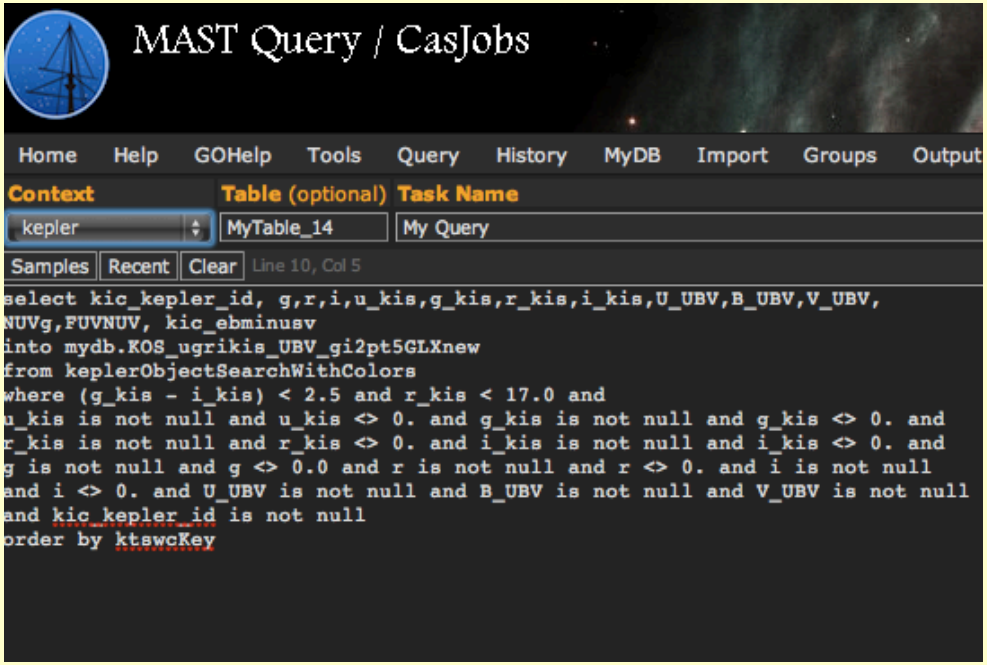
How we did the matches and guaranteed objects are on the detector

Kepler CasJobs

Extensive GO user help



SQL query box



Supplement Pages (not in verbal presentation):

- KIS (Sloan) filter curves
- problems found with KIC magnitude comparisons
- Coverage, magnitude distribution for SDSS

Supplement Pages: INT filters, problems found with mag correlations

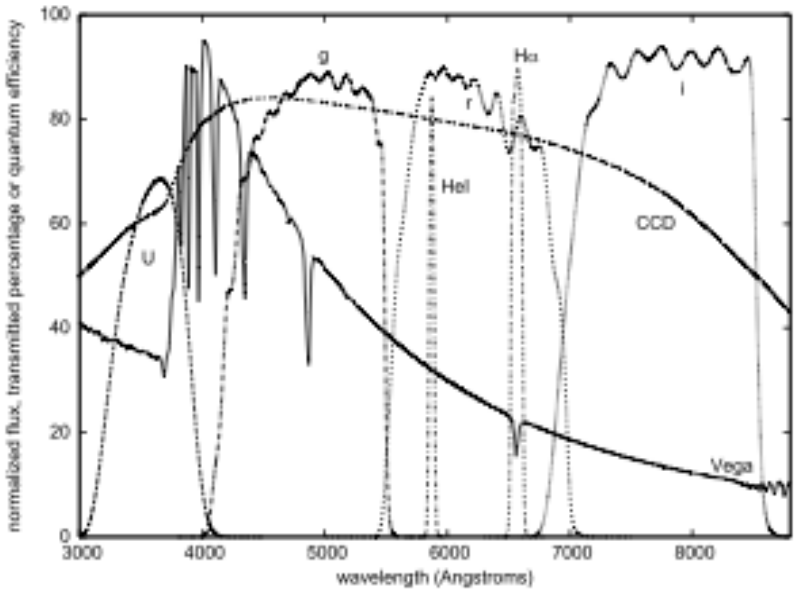
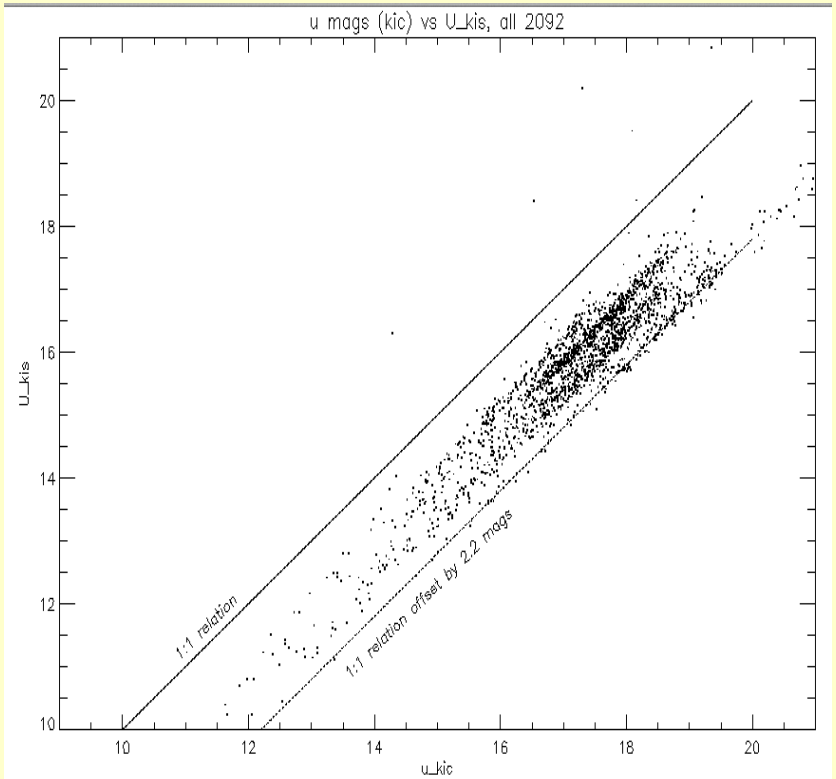
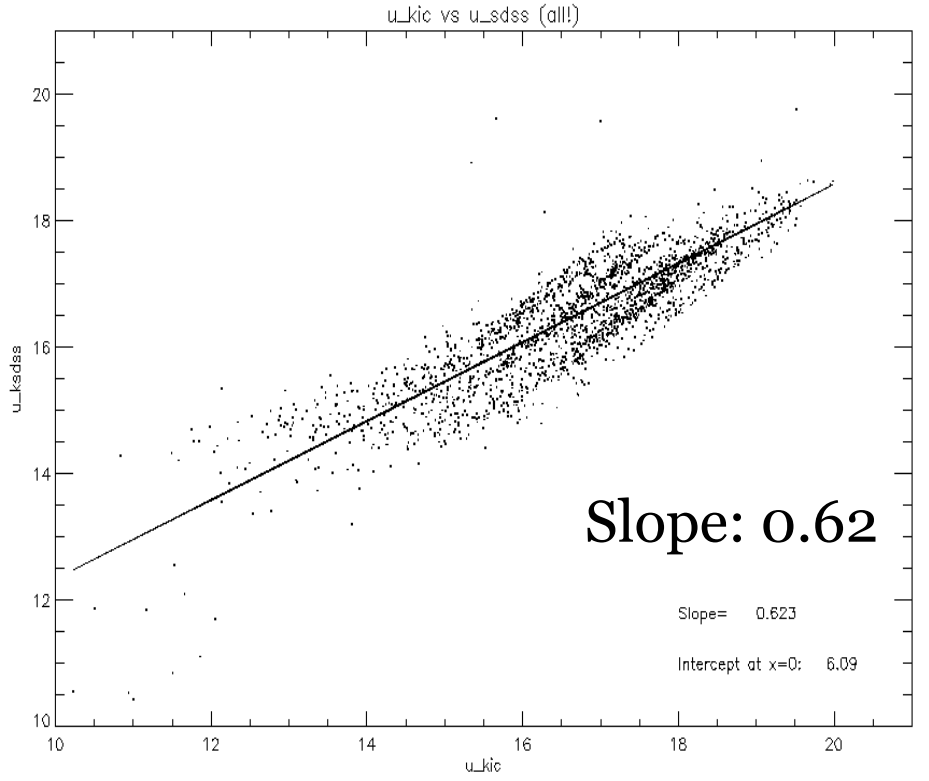


Figure 2. Filter efficiency curves of the U, g, r, He I 5875, Hα and i-band filters used in the UVEX survey and IPHAS (dashed and dash–dotted curves), overplotted on to the spectrum of Vega (solid curve), together with the CCD-efficiency curve (dashed).

Compare u_{KIC} vs. U_{KIS} (left); U_{KIC} vs. u_{SDSS} (right)

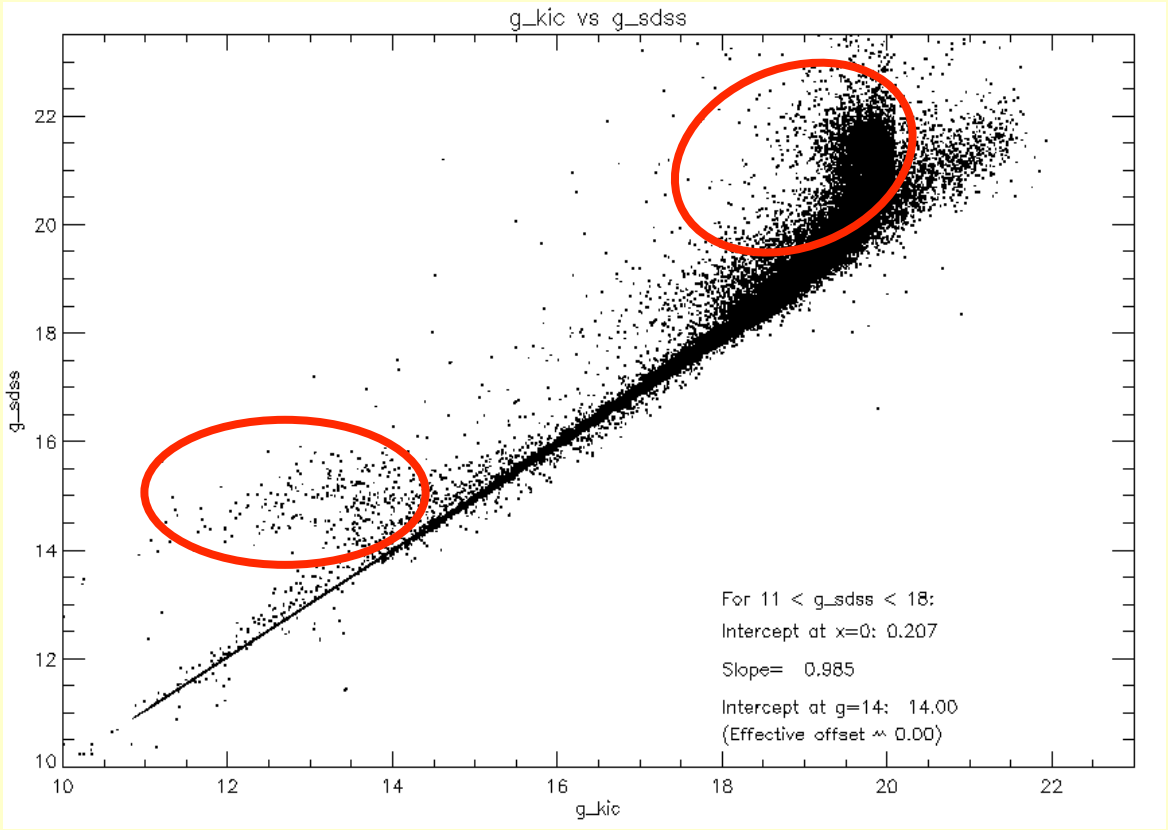




(KIC authors have asked MAST to kick out u_{KIC} from search page)

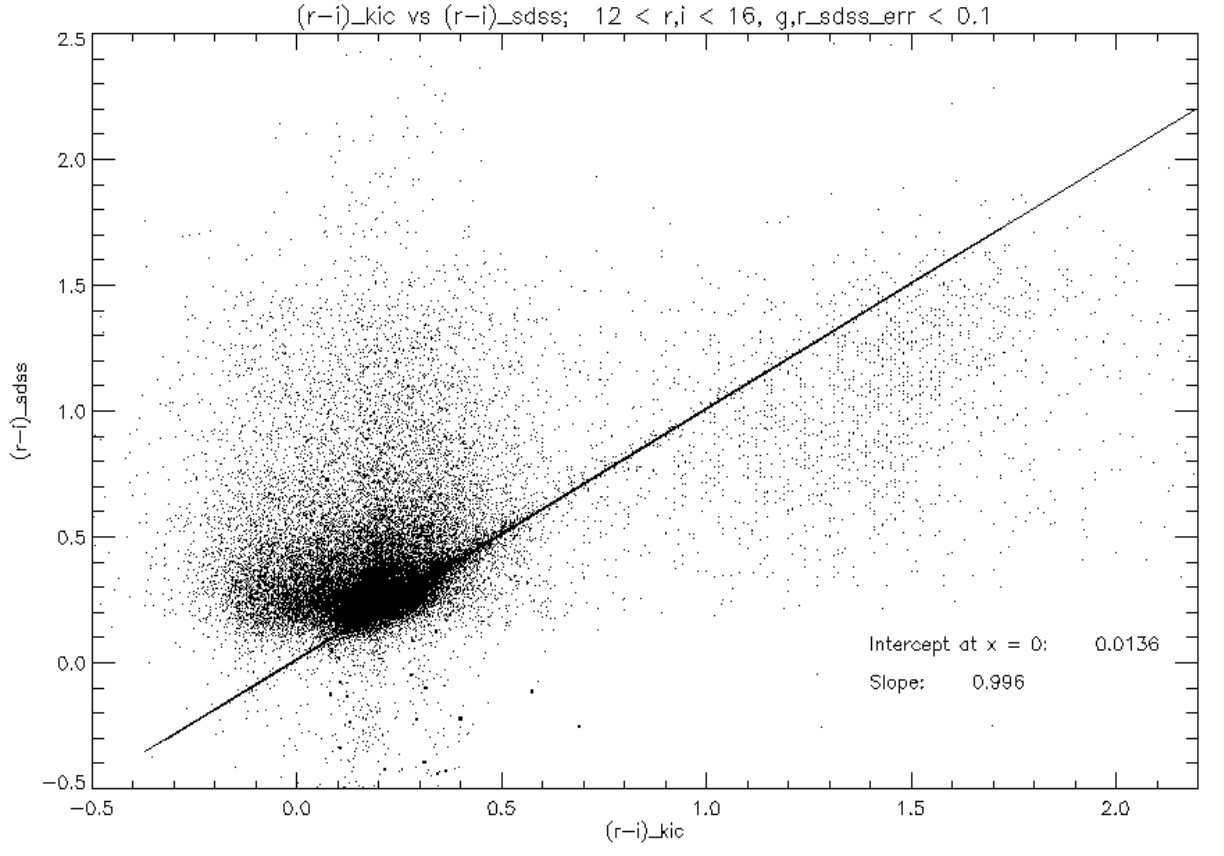
g_{KIC} vs. g_{SDSS} magnitudes

Left "flange" comes from SDSS data



Right "flange" comes from KIC data

$(r\text{-}i)_{kic}$ vs. $(r\text{-}i)_{sdss}$ plot (for 12 g, r<16)



Scatter (from i) is unexplained! – not the usual culprits.

SDSS objects: distribution on sky and of r magnitudes