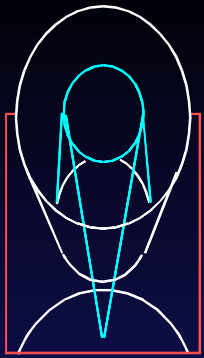
Color transformation and GSC2 color properties

Jorge Fernando García Yus

Color transformation and GSC2 color properties

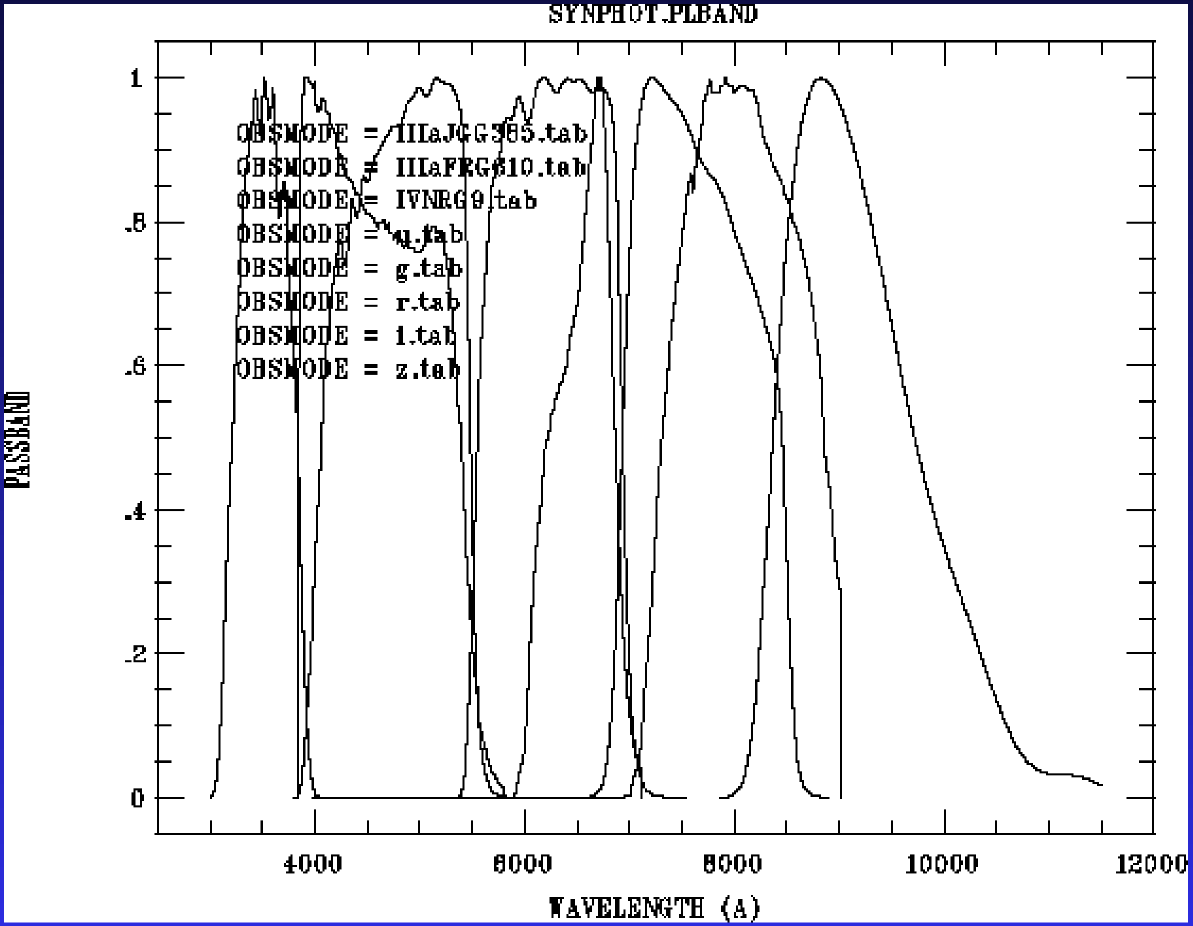
❖ Color equations added for the major contemporary surveys and the curves are available on the web

- TYCHO
  - Already in use
- 2MASS (J, H, K)
  - Need to be improved from the data set, because the spectra used by SYNPHOT are blackbody extrapolation
- SLOAN (u’, g’, r’, i’, z’)
  - Very good agreement between the band passes, but not data has been compared.



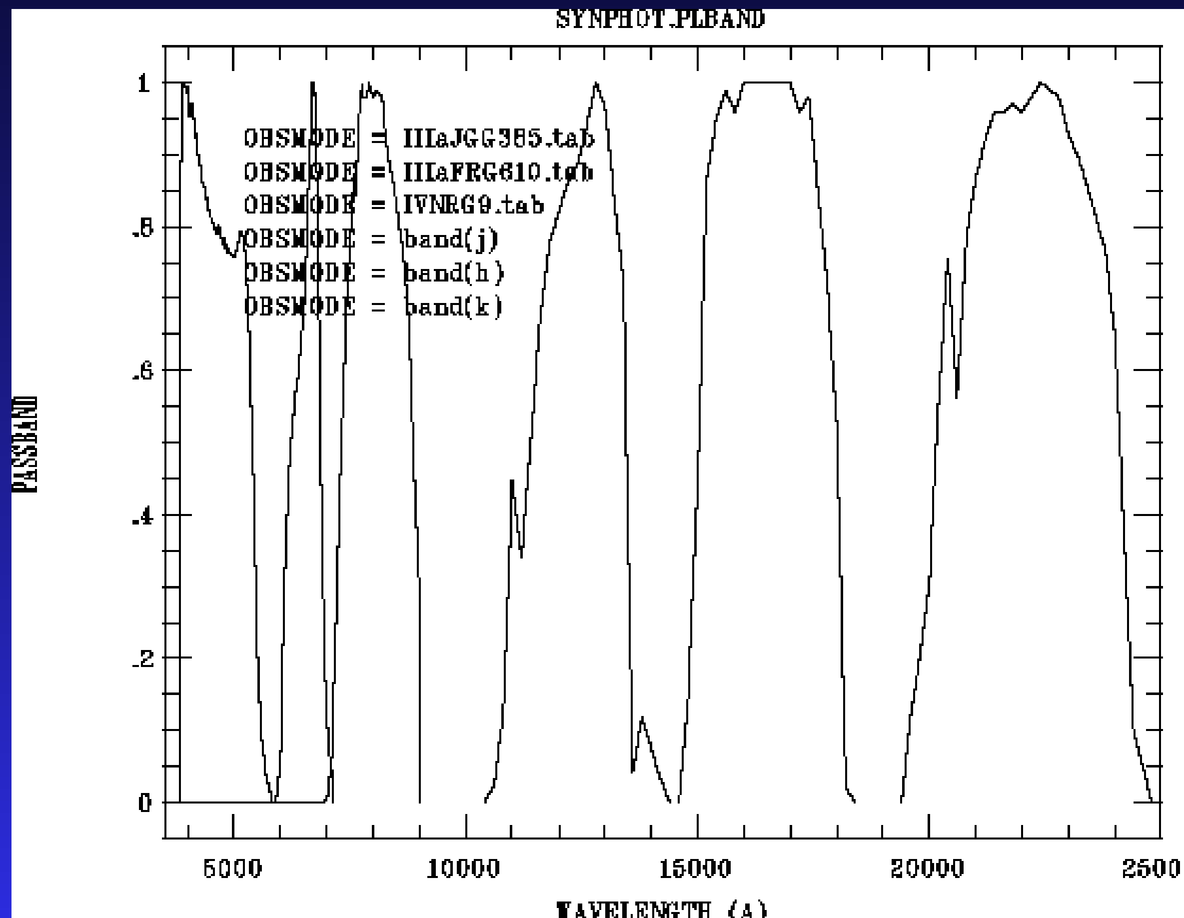
Color transformation and GSC2 color properties

- GSC2 and Sloan filters



Color transformation and GSC2 color properties

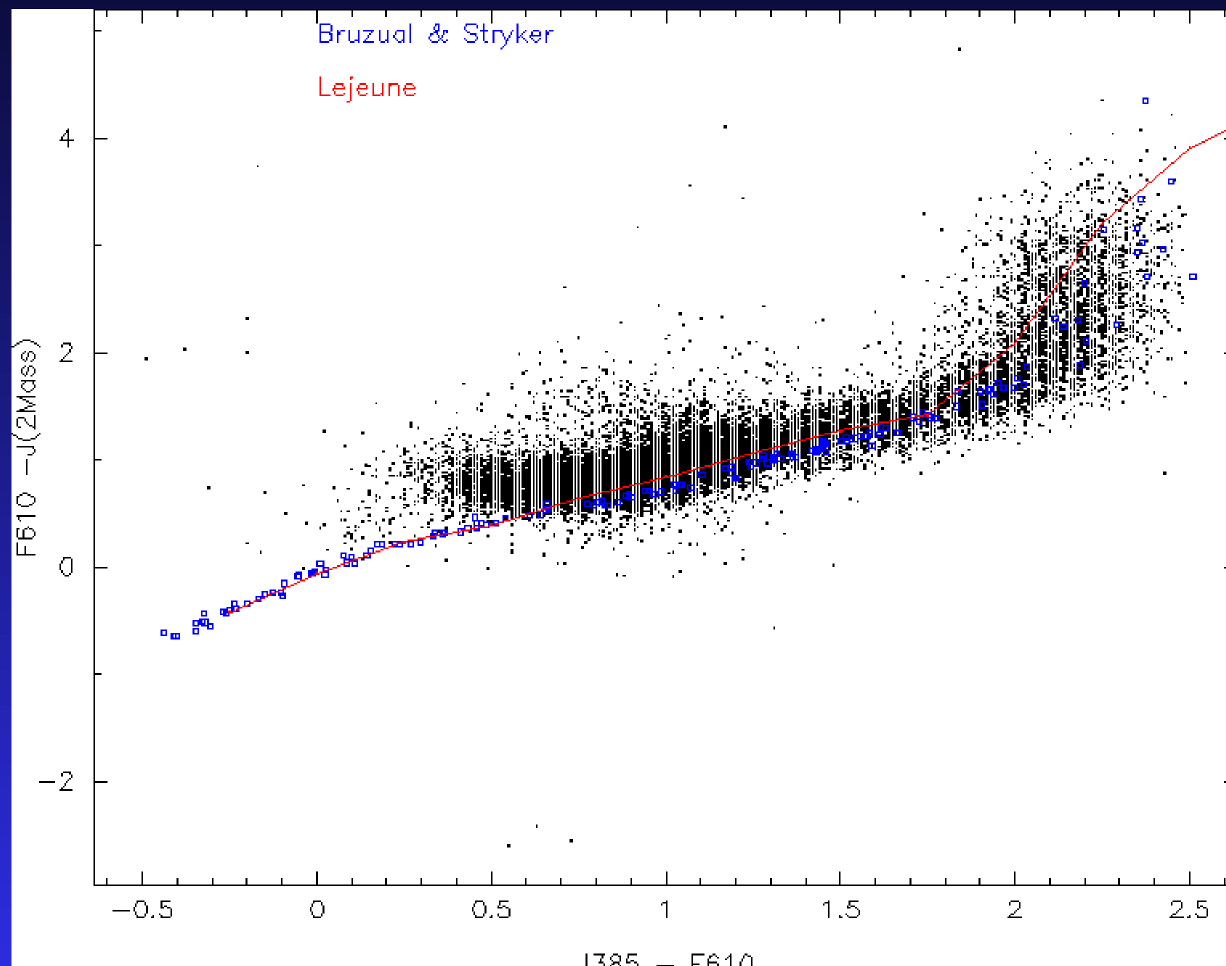
❖ GSC2 and 2Mass filters
  - ➤ Large extrapolation range.....



Color transformation and GSC2 color properties

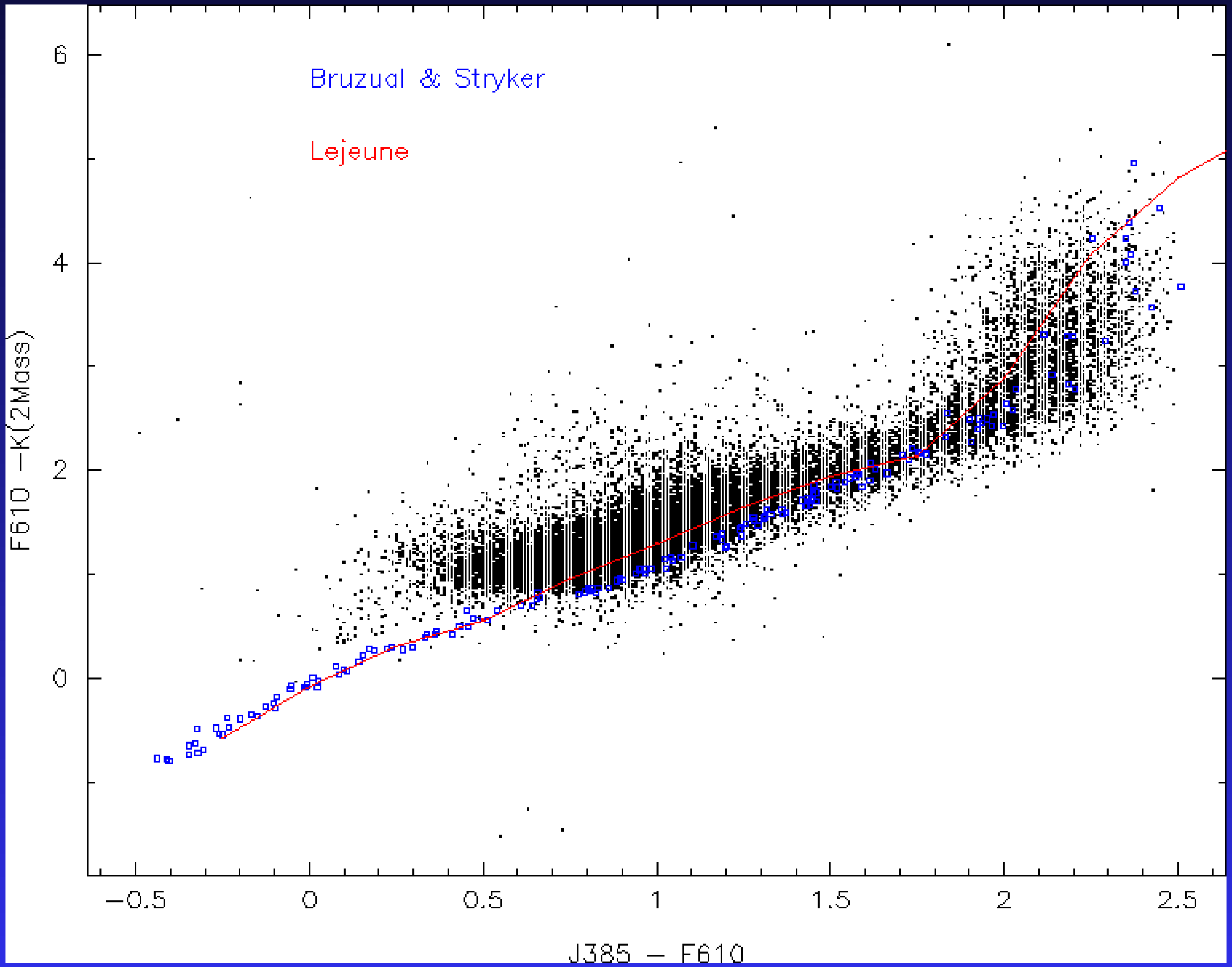
❖Equatorial region (850)

- ➤ Blue XJ850
- ➤ Red XP850
- ➤ Infrared 2Mass PSC (error in each filters smaller than 1 tenth of magnitude)



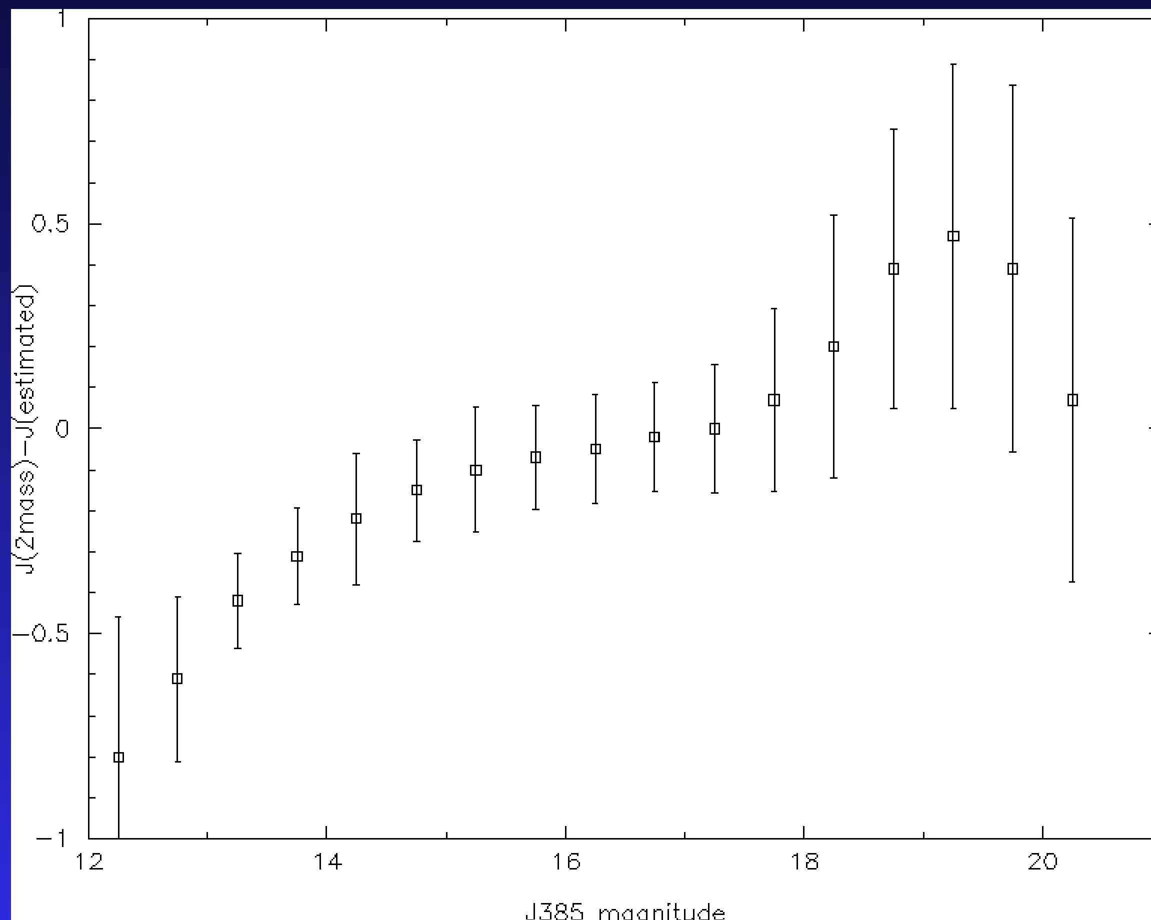
Color transformation and GSC2 color properties

- Red line is the transformation for a solar metallicity dwarfs (*log g =5 and [Fe/H]=0*) (Spagna)
- Blue marks from spectrum library(Bruzual and Stryker)



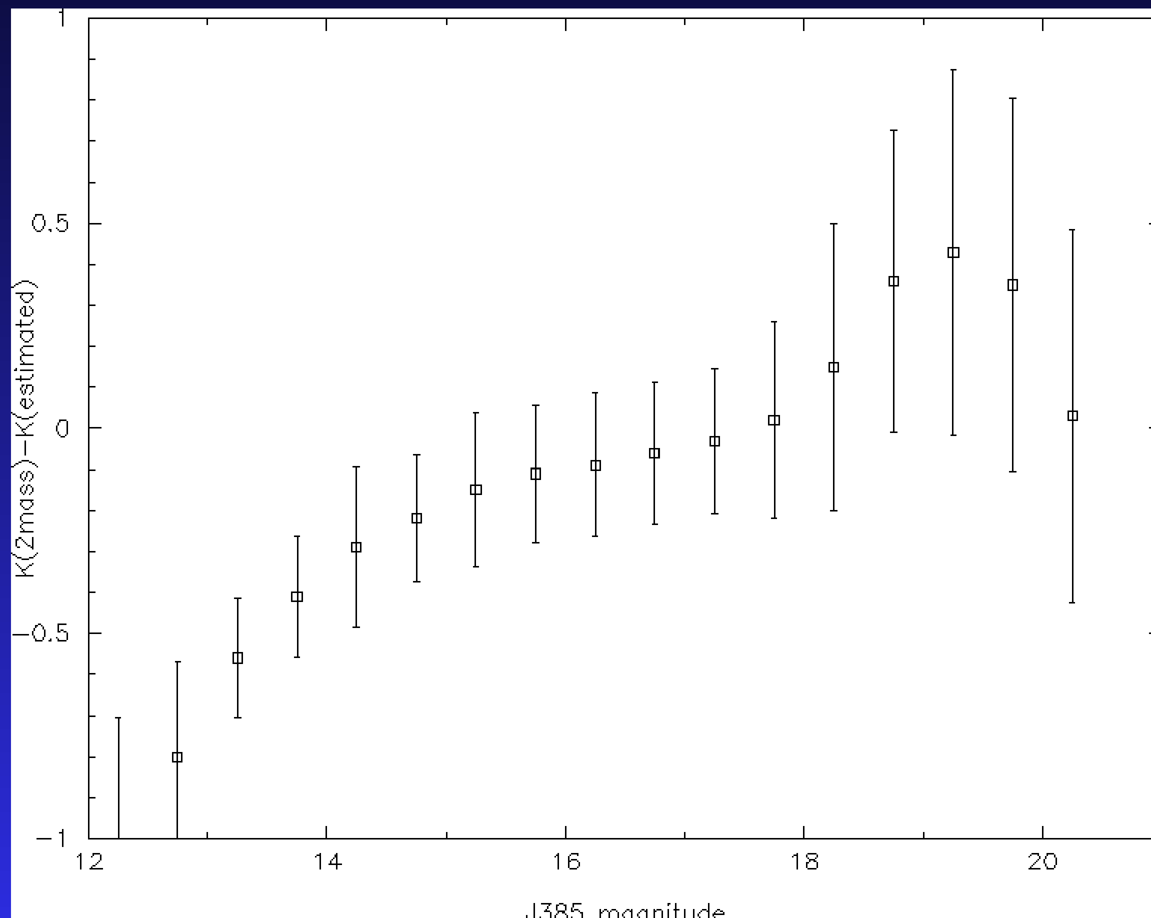
Color transformation and GSC2 color properties

❖Error distribution for Infrared J magnitude predicted by the color transformation equation for a given J (GSC2) magnitude star



Color transformation and GSC2 color properties

❖Error distribution for Infrared K magnitude predicted by the color transformation equation for a given J (GSC2) magnitude star



Color transformation and GSC2 color properties

- Future work
  - Compare Sloan magnitudes (for stars) with GSC2 data
  - Determine the GSC color properties
  - Match GSC2 catalogue to 2Mass PSC
    - Get empirical color transformation
    - Estimate J (NIR) and K (NIR) magnitudes for the telescope and instrument operation
    - Experiment using 2Mass objects as a photometric calibrator for regions where still are poor and for the IR surveys (IS and XI)