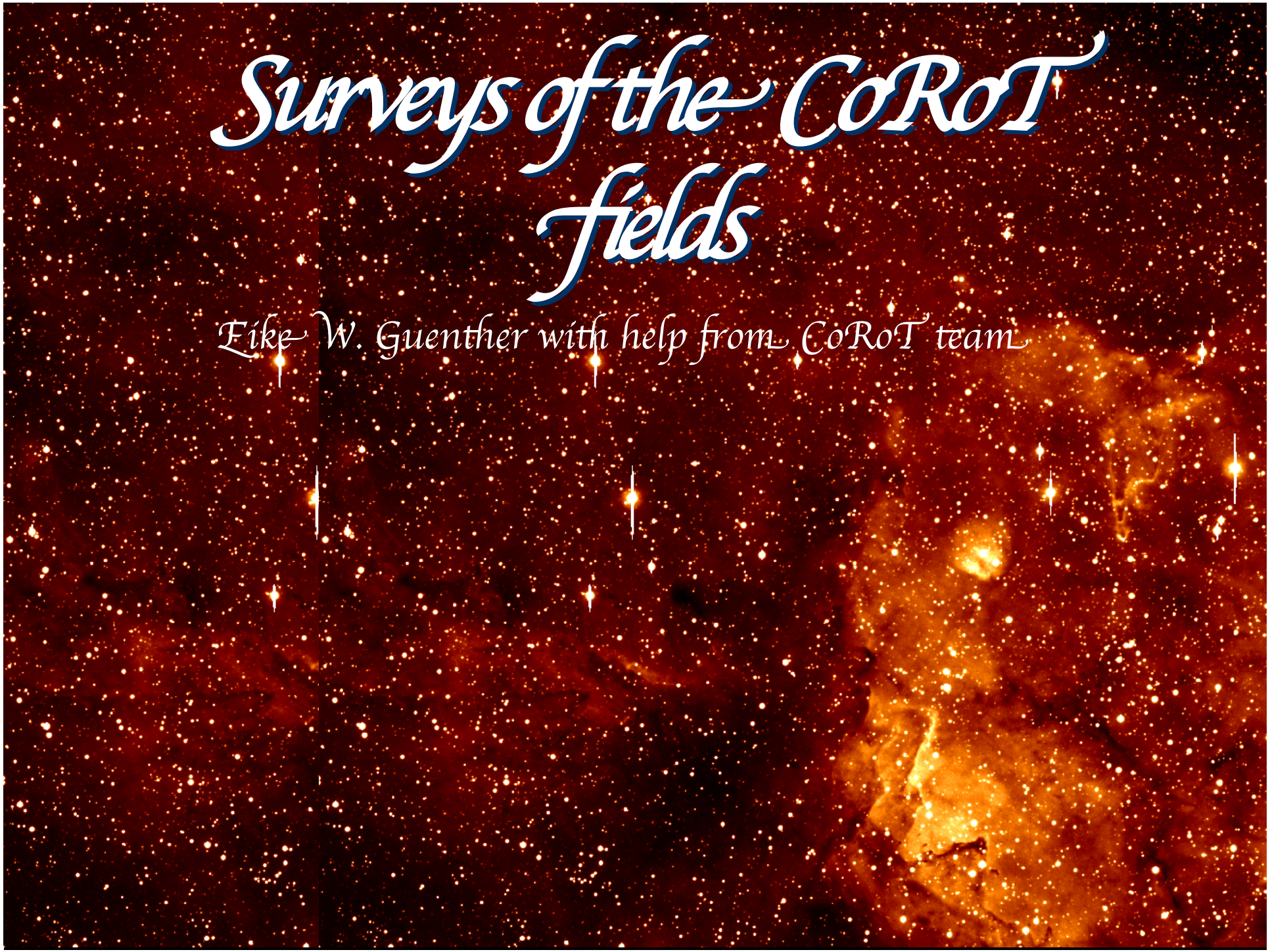

Surveys of the CoRoT fields
Eike W. Guenther with help from CoRoT team

Key aspects I

- CoRoT has observed 153 000 stars, and each light-curve contains thousands of photometric measurements.

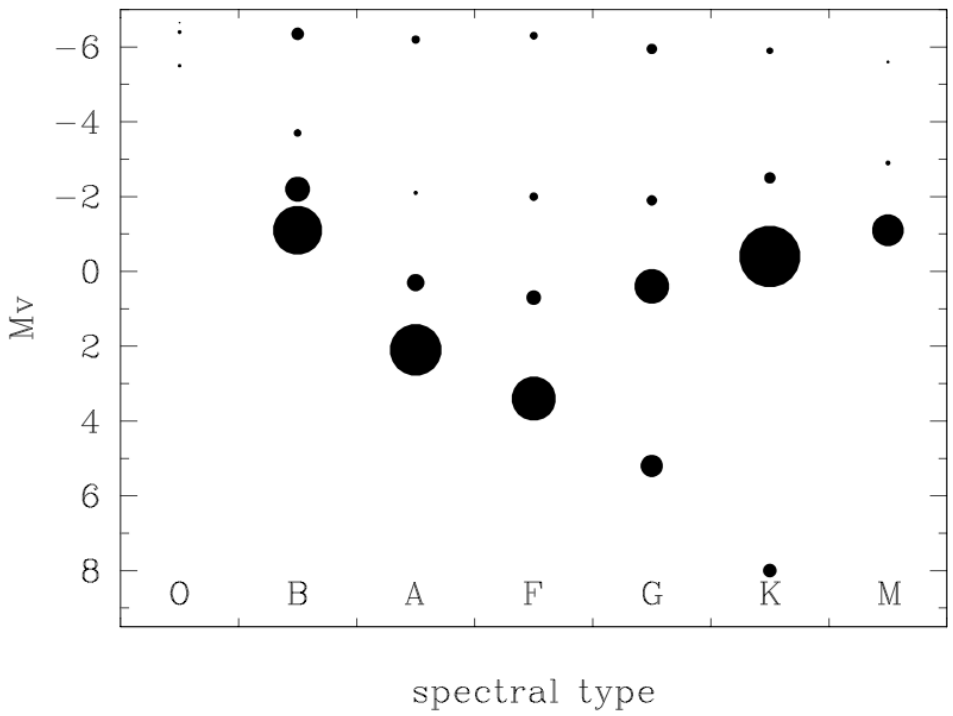
- If we compare the CoRoT-database with other databases it is one of the best photometric library ever created, which contains an enormous wealth if information about stellar physics.

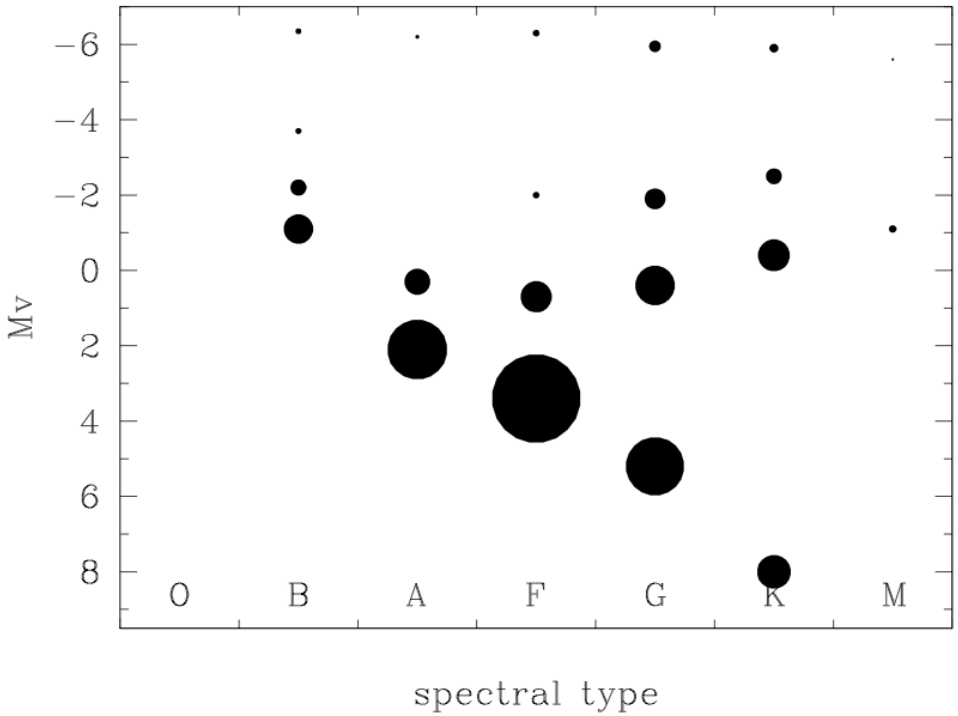
--> However, we have to know what the star are of which we have the light-curves.

Key aspects II

- What is the frequency of inner planets of A,F,G,K-stars?
- Is there a difference between the planets observed towards the inner galaxy, and towards the outer part of the galaxy?

Left: HRD the bright stars (V>6.5 mag, left)
Right: HRD that CoRoT observed in IRa01, LRa01, LRa02





Photometric Surveys I

- ExoDAT database: Harris B,V and Sloan r′ i′ photometric survey obtained with Wide Field Camera (WFC) at the Isaac Newton Telescope (INT), including also 2MASS, DENIS, UCAC2, USNO, catalogues; talk by Cilia Damiani
- Cusano et al. 2010: UBR_cI_c Ha and JHK observation of Sh 2-284 region (LRa01)
- BEST observations (multiple epochs): e.g. Fruth, T. 2012; Kabath, P. 2009; periodic variables
- Images from on/off photometry: e.g. Benjamin Samuel: about 100 targets observed with CFHT MegPrime/MegaCam. FOV: 0.96x0.96°, g'-filter, V=11 to 20, or 21 mag

Photometric Surveys II

- IPHAS: LRa+LRc-fields; RGO U, Sloan g, Sloan r, Halpha
- UVEX: LRa+LRc-fields; RGO U, Sloan g, Sloan r, HeI(5875) (taken three years after IPHAS to get proper motions)
- VPHAS+: some LRc fields; Sloan u, Sloan g, Sloan r, Sloan i, Halpha; with VST; 11<r<20 mag
- VISTA: VVV survey? (RA: 11.h-17:4h; 17.0-18.75h, DEC: 0+/-7d) ZYJHKs, multiple epochs
- SuperWASP?: It seems that CoRoT-fields were not observed!

Spectroscopic Surveys I

J.C. Gazzano et al. 2013; Gazzano et al. 2010: 1227 stars in LRA01, LRc01, SRc01, FLAMES/GIRAFFE R=25900, I=516-536 nm and UVES/FLAMES R=47000, λ 480-590nm

B. Loeillet 2008: 816 stars (multiple observations) in LRa01/LRa06, FLAMES/GIRAFFE R=25800, λ 516-536 nm, and UVES/FLAMES R=47000, I=480-590nm

A. Miglio, J. Montalban, C. Epsteinet al.: "Galactic structure collaboration": observing giant stars in CoRoT fields with SLOAN (talk by J. Montalban). LRa01 and LRc01 290 (giant) stars observed, plan to observe another 74.

Spectroscopic Surveys II

Cusano et al. 2010: VIMOS, Sh 2-284 cluster 912 spectra in MR red 0.25nm/pixel 480-1000nm, 594 spectra HR red/organge grisms 650-875 nm and 515-760nm

E.W.Guenther; 2012; D.Sebastian 2012: 11466 stars IRa01, LRa01 (=LRa06), AAOmega, LRa02 λ374-877nm, R=1300

Lev Tal-Or 2013: LRc01-LRc05 AAOmega, 1389 stars (346 from BEER survey) 6-7 exposures, λ370-450nm, λ845-900nm RV-precions 1 km/s.

In total : 16694 spectra of 153 000 stars that means

--> Only ~10% CoRoT-targets have been observed spectroscopically

Spectroscopic Surveys III

RAVE-survey? 840-875nm; 450000 observations:

----> CoRoT fields NOT observed?

Gaia-ESO Survey? 300 nights observing time, public spectroscopic survey of star clusters of all ages; GIRAFFE (R=16000-25000) 100 000 stars, UVES (R=47000) 10000 stars. Possibly some clusters in the CoRoT-fields will be observed

How about the LAMOST/LEGUE survey?

LAMOST/LEGUE survey

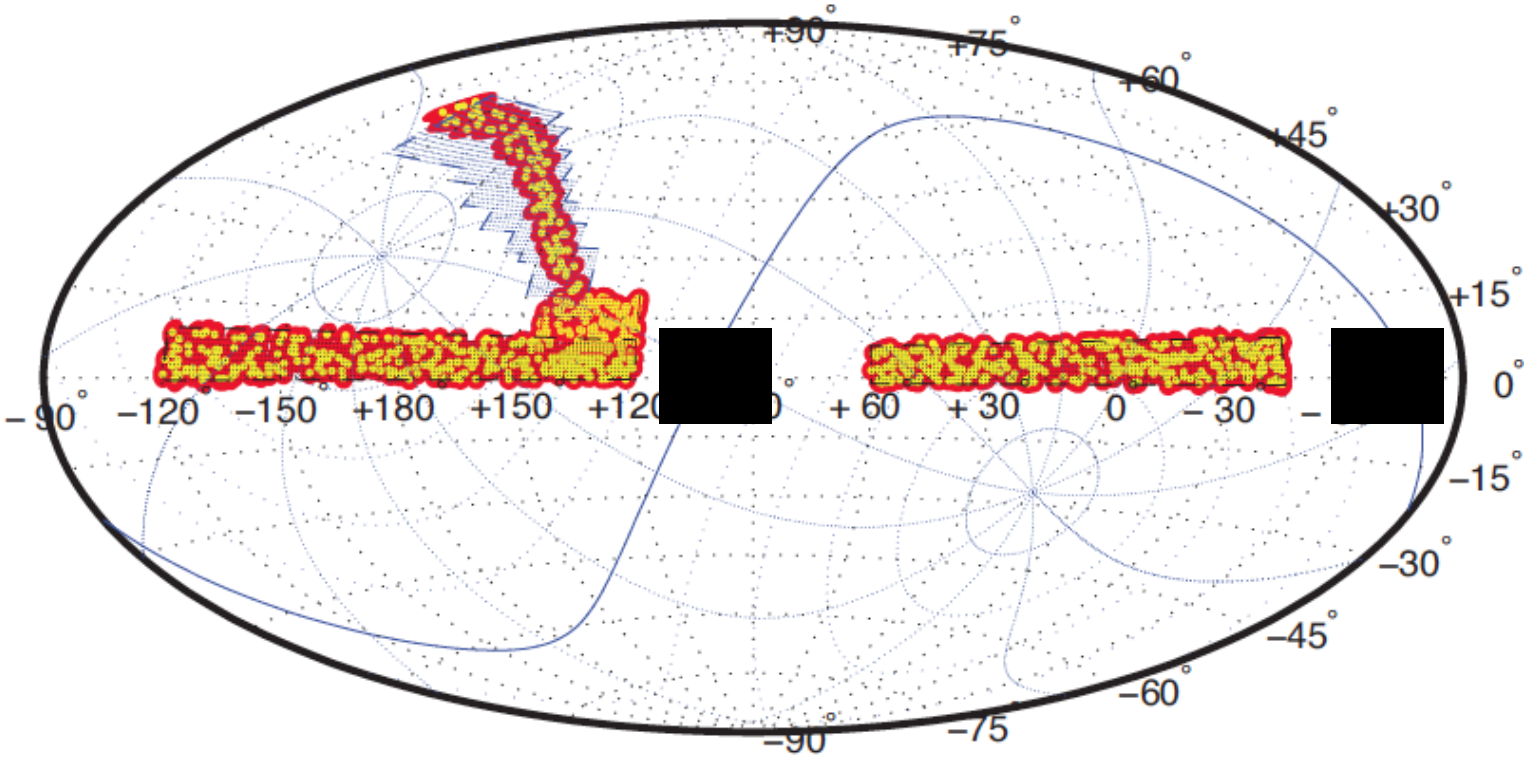


Fig. 2 Sky coverage for all possible plates for dark nights: As shown in Figure1, blue is GD1 area, red is Anti-center Box, and two black rectangles are SGC and NGC areas, respectively. The red circles show all the possible plates while the Shack-Hartmann star is selected to be the center for each plate, seen as yellow dots.

LAMOST

- 6.67x6.09m spherical primary
- 5.72x4.4m corrector-mirror
- FOV 5x5 degrees
- 4000 fibres
- Dec -10 to +90deg can be observed
- 16 Spectrographs, each with 250 fibres, red/blue camera
- R=1000, λ=370-590 and λ=570-910nm (if a slit is placed in front of the fibres R=2000)

(proposed: R=5000 mode: two sections of spectrum, each 35 nm wide: λ=510-540nm and λ= 840-875nm)

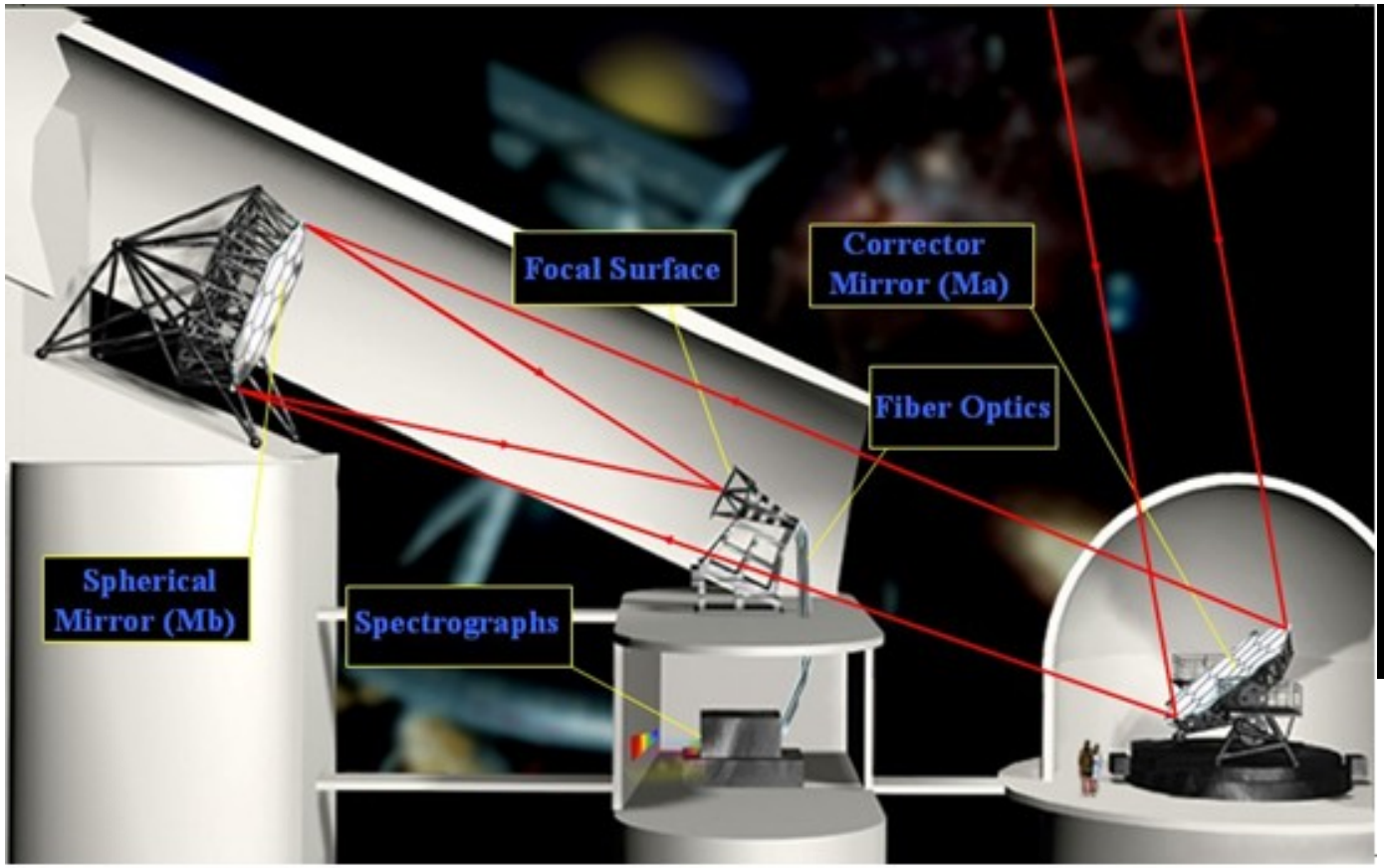
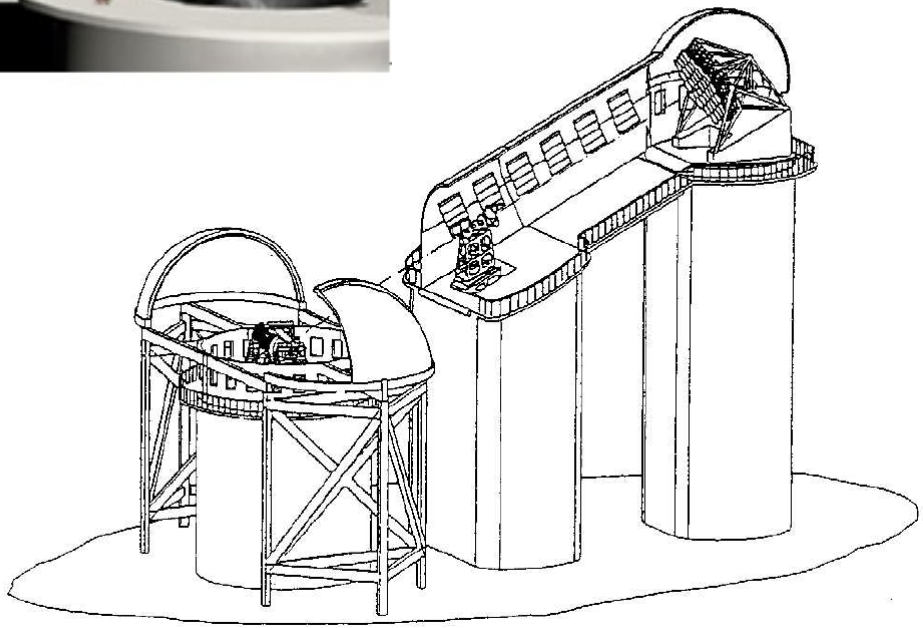
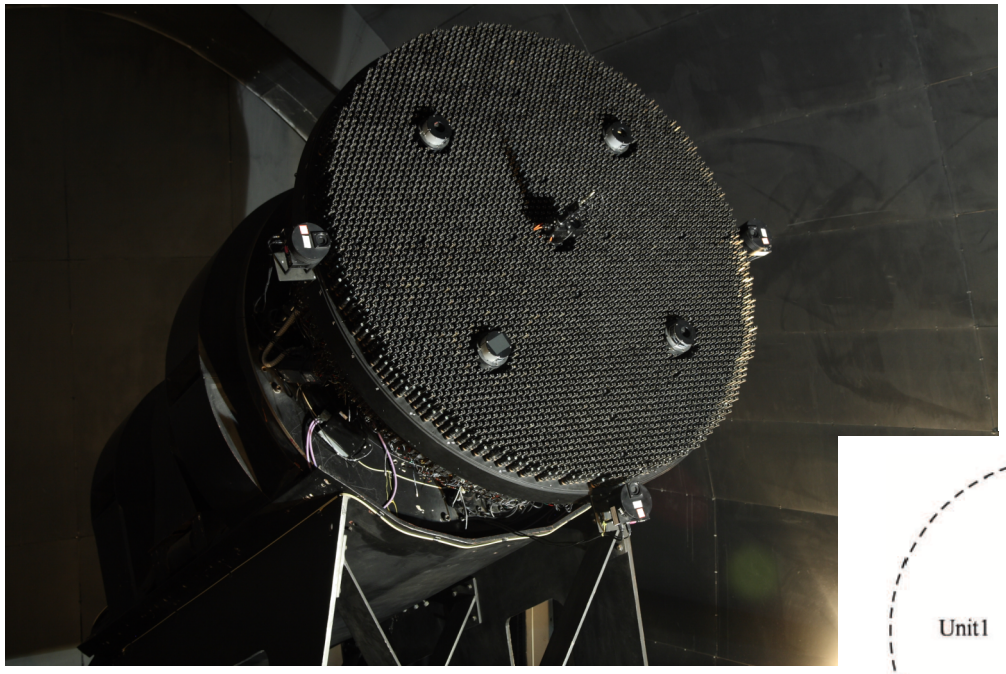


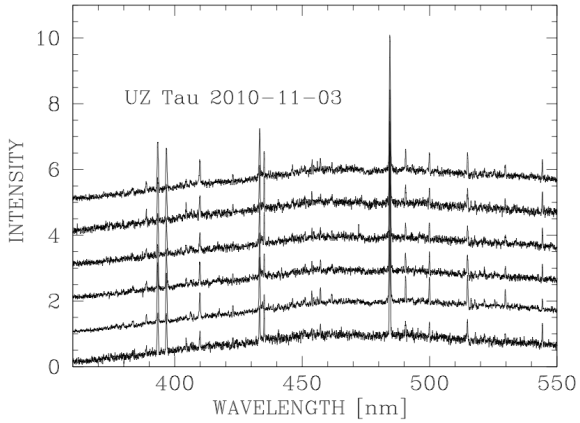
Figure 2 LAMOST overview



LAMOST fibres positioner

The maximum distance of a fibre from the point on which the arms are mounted is 3 arcmin.
The distance between two mounting points of the arms is 4.47 arcmin.
This means that up to 800 (400) stars can be observed in a 3°x1.5° (1.5°x1.5°)CoRoT field.
--> 15 settings per CoRoT field for all stars, 8 settings to cover all stars brighter than V=15 (AAOmega 21 settings)
--> about 300 settings for all stars in all fields, or 130 settings to cover all stars brighter than 15th mag in all LR-fields.





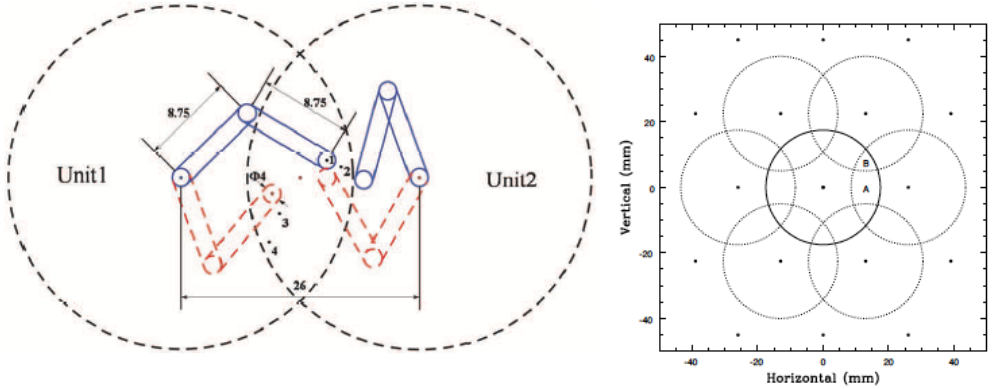
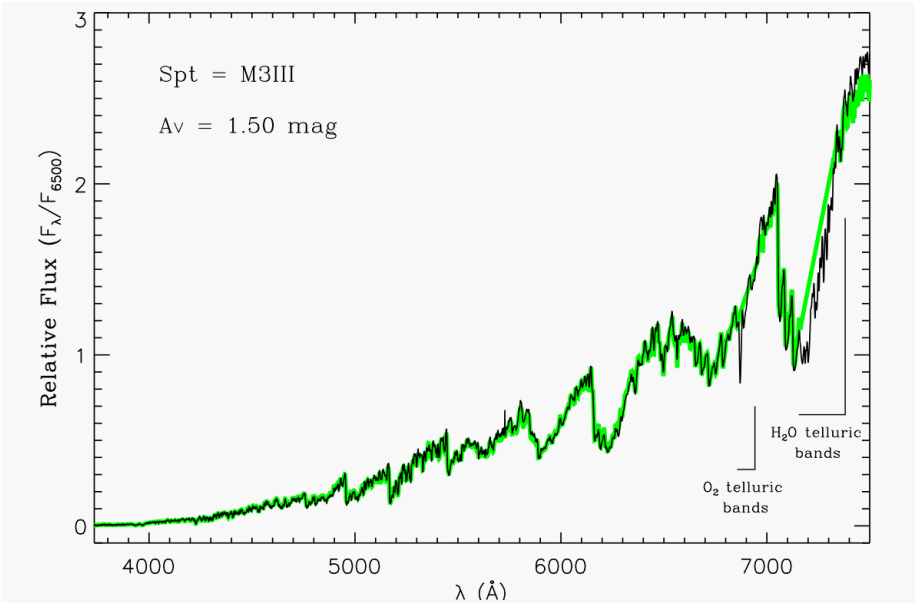
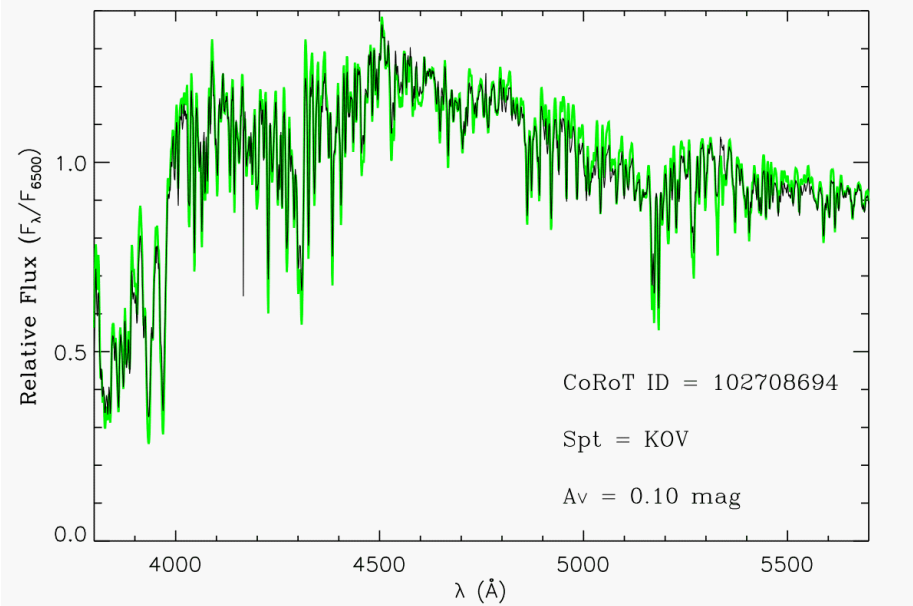
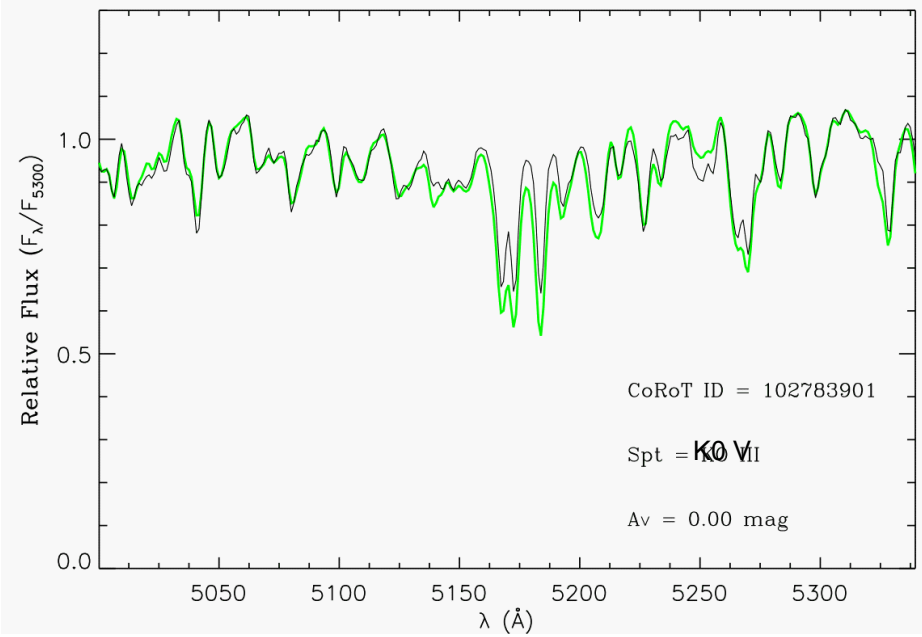


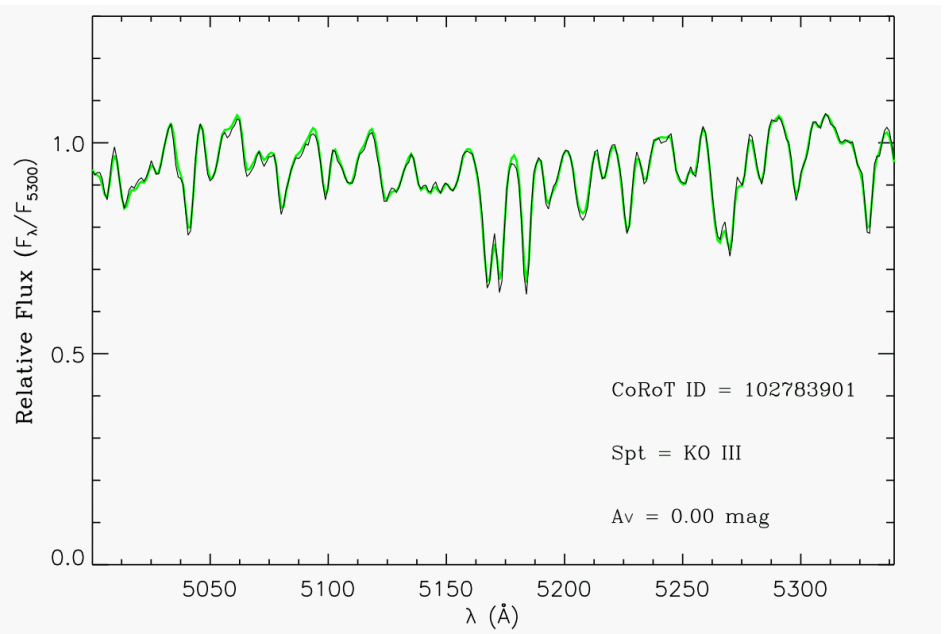
Fig. 3 The left panel: A plot showing the minimum separation of two targets on which two fibers can be positioned. The right panel: The distribution of fibers on the focal surface. The distance between any two fiber centers is 26mm (or 4.47 arcmin). There are two kinds of areas where fiber collision may happen, labeled "A" and "B" respectively. These areas actually gives the possibility to measure objects in pairs (in "A") or triples (in "B") at a single shot.

Fitting the spectra of late types star with spectra of R=1300 (plots von Davide)









Comparing the AAOmega and the FLAMES results

Comparison between the results obtained with FLAMES (Gazzano et al. 2010)and AAOmega. The large scatter around 4500 to 5000 K is due to the fact that stars of luminosity class III have a large spread in temperature for the same spectral type.