

CS38 Points to document :

1) recent results, papers in prep.(Seismo)

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- Papis et al A&A (2 early B stars characterized spectroscopically at the top of Beta Cephei IS, not found pulsating...one rotating fast, one slowly; showing rotation modulation 'spots or chemical inhomogeneity)

- Mosser et al. 'Universal pattern red giants...' accepted in A&A

to be submitted

- HD52265 : solar-like target with a known planet; very good observational results already presented t Lanzarote meeting early 2010. We have already 6 solar-type targets published, including 3 good ones (in terms of S/N); + HD52265 now and 5 more under analysis (including 3 good ones)

- a papers on the detection of mixed modes in RG, (Mosser et al.)

- a work on distance determination from seismic radius+Teff for Red Giants of Irc01 and Irc01

RQ.presently for red Giants, the work goes on exofield data; in general both for Kepler and corot, work on statistical samples and understanding and use of seismic indexes to characterize stars and make population studies ; but with good targets in seismo field can tackle structure, helium content etc etc, as was shown with the one 'good target' we had in seismo field already)

2) How does Kepler enter the game and what are CoRoT niches ?

In general:

ADS search: 2008-2010 with oscillation, pulsation or seismology in abstract and Kepler in the title and - > 52

idem with corot: -> 110

NB: new (this month) publication window for KEPLER: ~ a few 10s ??

This confirms what we anticipated: Kepler results are growing fast (for our general satisfaction) but CoRoT results will remain very significant, especially if we are attentive to the niches identified for the extension programme (see hereafter).

Solar-like pulsators:

- Til now, with Kepler, 3 papers published in 2010 (1 théorique (Travis et al.) , et 2 observations (Chaplin et al.; Hekker et al.)) + paper HAT-P7 de JCD.

- in prep with Kepler: ~10 papiers submitted to internal referee (1 for Science) about to be submitted. ~6 en preparation (pour Fevrier-Mars).

With CoRoT (20 refereed papers accepted today, on 6 stars)

We have 6 stars published but only 3 with good S/N data. With the 5 to come, including 3 good S/N, we have good expectations in the months to come.

Kepler has already collected about 300 days of data for 5 stars ; Despite the larger duration , the data are more or less comparable to what was achieved with CoRoT, because it was low S/N stars observed 'by chance'.

The real PLUS is expected within 9 months, when Kepler will have collected about one year of data for a selection of ~100 good S/N solar-like pulsators being observed right now.

Niches :

not to be changed in a near future:

- solar very-like
- 'fast rotator' to see splitting
- specific chemical composition

Red Giants :

Papers published:

2009: 4 with CoRoT

2010: 5 with CoRoT and 6 with Kepler

2011: ratio will be in favor of Kepler

Papers submitted (that I am officially aware of):

1 or 2 to be submitted with CoRoT

-one paper on mixed modes (Mosser et al.)

-One paper on distance determination using Teff and seismic radius estimate (Liege group)

Then, some progress expected on the population studies. Many CoRoT data available for this now.

3 to come with Kepler

- RG in open clusters NGC 6791, 6811, 6791 observed with Kepler (2 papers)

- Red-giant oscillations, with mixed modes, analyzed with Kepler

Advantages of Kepler

- Already 13 months of continuous observation for more than 1200 red giants start to see rotational splittings...
- SNR about 5 times better

Advantage of CoRoT

- Comparison of center and anticenter fields
- des étoiles 'proches' qu'on pourrait caractériser (parallaxe, mesure interféro du rayon, ...)
- several clusters available in the CoRoT eyes.

Niches:

- fields toward center and anticenter and different directions
- red giants in clusters
- nearby stars that can be well characterize (see priority list of the RG group)

B and O stars :

With CoRoT:

~13 papers published, including 2 Highlights in high-profile journals:

Solar-like oscillations in HD 180642: Belkacem et al. in Science 2009

Period spacings and their periodic deviation in HD 50230: Degroote et al. in Nature 2010

Advice for future selection:

1. Kepler does not have O stars in its FoV, CoRoT niche! But some are understood as massive Beta Cep stars, others seem to have stochastic modes, yet others are variable but with no clear periodicity. Not able to predict what it will be for an individual one....
2. Kepler carefully avoided B supergiants for its planet hunting: CoRoT niche! But do be aware that a short run is really too short.... so if you take them up, we need 5 months
3. Kepler has about 30 stars thought to be B pulsators in its KASC programme. ALL are g-mode pulsators (i.e. SPB-type). It does NOT have B0-B2 stars, i.e. Beta Cep candidates so far:
CoRoT niche!
4. We do not need more B8/B9 stars, have seen enough of them. Anything between B0 and B7 is interesting, but time base is important: we have not succeeded to resolve rotational multiplets so far, except for HD 50230. So please stick to 5 months if at all possible.

niches:

- O stars
- hot (B0-B2) stars
- supergiants

3) **CL: What are CoRoT niches?**

- red giants with good parallaxe in the seismo field (cf Joris De Ridder);

- red giants in clusters

- hot super giants

- O

- B0-2

- solar-type close to the sun ...

- solar type with specific chemical comp (NB or any specificity...planets?...)

- solar type with high V_{sin}i...if exist...

- CP stars: HgMn list, ...

- ...