AsteroFLAG Collaboration
Summary of Meeting of Group at Sheffield Held on 2006 August 9
August 21 2006 (WJC)

History: version 1

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1. Summary of main objectives

Fifteen members of the group were present at the short discussion meeting we held in Sheffield. The main aims of the meeting were to discuss the working framework of the group, how we get started, and how we might get extra financial support for the ISSI workshops. We agreed on the Team structure, which I deal with below in Section 2. Conclusions to come out of the meeting were:

(i)   The main objectives of our work need to be focussed on using the fitted mode parameters of the hounds to make inference on the structures of our artificial stars. Since we would want as many of the group as possible to be able to take part in this analysis, we concluded that the team that actually makes the artificial datasets—Team 3, the hares—needs to be comprised of as few people as possible. We will therefore have a large 'Team 5' (*i.e*., most of the group may take part) working on various aspects of uncovering the structure and dynamics of our artificial stars, with only members of Team 3 excluded from this work.

(ii)   We agreed it is extremely important that we respect what has been done already on hare-and-hounds and artificial data usage for asteroseismology of Sun-like stars. In particular, we need to take into account what has already been achieved by the COROT hare-and-hounds exercise, *i.e*., what was done, how it was done, and what it achieved. Several members of the asteroFLAG group have been very actively involved in the COROT hare-and-hounds, and their input on this issue will be invaluable.

(iii)   It is important that asteroFLAG does not duplicate what COROT did, but provides *additional* information for the field. Obvious areas of emphasis for us will be to make artificial data to mimic ground based observations, *e.g.*, for the proposed Stellar Oscillations Network Group (SONG) network of telescopes, to further understanding of the impact of the ground-based window functions; the Aarhus group have already done work on making realistic artificial data. Second, we can also to make simulated data for the KEPLER satellite.

(iv)   We agreed that it was necessary to compile information on existing hare-and-hounds and artificial data packages (*e.g.*, from the COROT hare-and-hounds, and the Aarhus group), to be made available on the group web pages. I think it would also be sensible to plan presentations for the first ISSI workshop on the COROT hare-and-hounds, and Aarhus work. I would like a volunteer to collate, and report back on, this information.

(v)   We also discussed that we do not have to limit ourselves to Main Sequence stars. But this is a good place to start, and we can expand our remit, *e.g.*, to giants, as things evolve.

2. Team Structures

There will be 5 teams in total. Each team should have a chair/coordinator.

Team 1—the stellar modellers

o   Team 1 will provide software to generate the seismic inputs, *i.e.*, the mode frequencies, powers and damping rates.
o   In collaboration with Team 2, they will also give guidance on possible strategies for incorporating the effects of rotation and activity (inc. the various scales of granulation). It is up to Team 3 to ask for what help it wants in these areas.

Team 2—the observers

o   They will give guidance on intrinsic noise levels (in intensity and Doppler velocity) and observations lengths. The noise information could comprise photon-noise levels expected for SONG and Kepler.
o   In collaboration with Team 2, they will also give guidance on possible strategies for incorporating the effects of rotation and activity (inc. the various scales of granulation). It is up to Team 3 to ask for what help it wants in these areas.

Team 3—the Hares

- o They will make the artificial datasets, making use of the inputs and information from Teams 1 and 2.
- o Only they will have knowledge of the content of the data.

Team 4—the peak-bagging Hounds

- o They will fit the data to extract estimates of the mode parameters
- o Part of this team will be responsible for identifying modes, to help the other hounds with their fitting

Team 5—Are everyone except the Hares!
- o Will have the opportunity to use the data to make inference on the target stars.

Comments

(i)   Since Team 3 will need to use modelling code to generate the seismic inputs, it may be helpful for one of their number to be a stellar modeller.

(ii)   For some issues, Teams 1 and 2 will need to play an advisory role to Team 3. Teams 1 and 2 may lay out possible options and strategies, or things that Team 3 might like to consider, in dealing with particular aspects of the data, *e.g.*, on how to include rotation, or how to fix levels of solar noise. If Teams 1 and 2 are too prescriptive, they may have more than an inkling of what to expect when they analyse the data, something that is clearly undesirable!

(iii)   Following on from (ii), Team 3 should be proactive in asking clearly what guidance they want from Teams 1 and 2 on the trickier issues. Some of the tasks of Teams 1 and 2 will be clear-cut, *e.g.*, to provide code that will give the mode parameters, or to give noise-level characteristics for, say, SONG and Kepler. Those are tasks Teams 1 and 2 can get on with straight away. It is for the other trickier issues, like those indicated in (ii) above, where Team 3 will need to ask for the help it wants.

(iv)   Meanwhile, Team 4 will need to be geared up to fit the artificial data once it starts to be delivered. They need to decide on the capabilities their fitting codes will need; and who will be responsible for mode identification, information that will then be passed on to the rest of the group.

3. Support for ISSI workshops

(i) ISSI will provide accommodation and per diem support for up to 15 participants at each of our two planned ISSI workshops. The first workshop will be held at ISSI HQ, in Bern, from Jan 8 – 12 2007.

(ii) ISSI only pay travel costs for the co-ordinator (WJC).

(iii) We discussed possible sources of additional funding, to help cover: travel costs of all participants; and accommodation and per diem support for numbers in excess of 15 participants. The most obvious route was through HELAS.

(iv) The issue of support for asteroFLAG was raised at the HELAS board meeting held in Sheffield on August 10. It was agreed that WJC should formally write to Pere Pallé, who is the board member responsible for the 'HELAS Forum'. He has a budget to help support 'networking' of the type we are undertaking. I have already contacted Pere, and will keep you apprised.

(v) In addition to the route through Pere, I have also been told that it should be possible for individual members of the asteroFLAG group, who are in HELAS member countries, to approach directly their HELAS representative for support:

UK: Mike Thompson
Denmark: Jørgen Christensen-Dalsgaard
France: Thierry Corbard
Spain: Pere Pallé
Germany: Laurent Gizon

I'll find out more information on this. By using this route, and the Pere route, we should hopefully be able to get support for all.

(vi) If we are in a position where we are unable to secure support from HELAS+ISSI for all participants, the general consensus seemed to be that we should make choices on who gets support based on the need to have good representation from each team; and on people's ability to support themselves. We also agreed the co-ordinator would have the final say on these matters.