

# Report on Work-Life Balance in Astronomy 2009

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We summarise the outcomes of the Work-Life Balance in Astronomy 2009 Survey and Workshop<sup>1</sup>. We are extremely grateful for all 425 responses to the survey and particularly the many people who took the time to write detailed additional suggestions for the open ended questions. The detailed results are provided in the appendices and in the main text we summarise advice for individuals facing work-life balance issues as well as advice for decision makers on how best to help individuals.

## 1 Introduction

Scientific research can be an all-consuming lifestyle for some, while others contribute during particular time intervals and have different priorities outside those periods. While caught up in the excitement of scientific discussion and in the practicality of impending deadlines it is easy to give the impression that everyone in academia is working all of the time. This can lead to higher stress levels for all but the most obsessed. In this report we refer to the potential tension between academic work and external priorities as “work-life balance”.

The priorities may, for example, arise from having a family or other caring responsibilities, coping with an illness, having hobbies or running a start-up company. We are interested in the interface between having additional priorities and having an academic career. We therefore try to abstract the impact from the cause, for example by discussing a career break rather than parental leave. We focus on careers in UK astronomy academia for practicality. However many of the issues will be common to other countries and areas of academia.

Our interest in this topic grew from the observation that women seem to drop out of astronomy careers faster than men. For example, more than 35 per cent of astronomy PhD students are female, and yet only around 3 per cent of astronomy Professors are female (Walker, A&G 2009). There exists a significant body of work on gender issues in academia and we do not attempt a comprehensive discussion of this research here. However, for this work we decided to focus in on a small potential part of the problem which is common to both men and women, work-life balance.

Here we report on the Work-Life Balance in Astronomy 2009 Survey which was carried out over two months during the summer of 2009, and the Work-Life Balance in Astronomy 2009 Workshop which took place in London, UK on 18th September 2009. The appendices to this document provide collated outputs from these events and the main text attempts to summarise them in a useful, and therefore filtered, way. In Section 2 we summarise the results of the survey. We summarise advice for individuals experiencing work-life balance tensions in Section 3. In Section 4 we discuss what changes decision makers could make to help individuals.

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<sup>1</sup><http://sites.google.com/site/worklifebalanceinastronomy2009/Home>

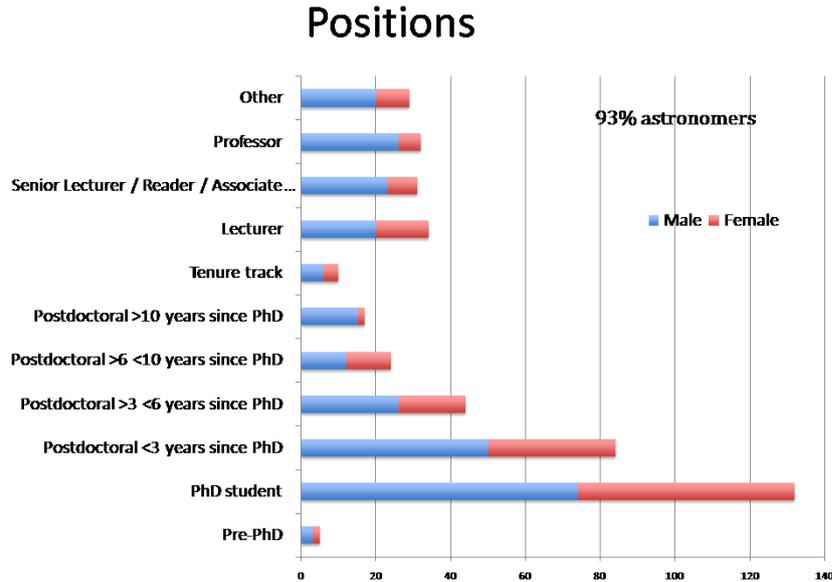


Figure 1: Fractions of all respondents in each career stage category, split on men and women.

## 2 Survey Statistics

We composed an online survey containing 26 questions which were a mixture of multiple choice and open response. It ran for 7 weeks over which time there were 425 respondents. This is similar to the number of respondents for an unrelated recent major survey of UK astronomy (The Ground Based Facilities Review). Collated responses are provided in the Appendices. Here we highlight the most interesting trends.

The survey demographics of the 326 UK astronomer respondents provide a useful match to the UK astronomy community: 65% were male; one third were PhD students, one were third post-doctoral researchers and 8 per cent were Professors; two-thirds were under the age of 35. We therefore have confidence that the questions answered by the majority of participants present a balanced view from UK astronomy. A seniority histogram for the complete set of respondents is shown in Fig. 1 split on gender. At the lower levels it matches well with the balanced fraction of men and women in academia. We see a slight over-representation of women in the Professor category. The fraction of people on postdoctoral contracts for more than ten years since their PhD seems higher than average, perhaps indicating a greater level of concern about work-life balance issues in this subsection.

### Career concerns

To assess the level at which work-life balance issues affect all respondents we asked two mandatory multiple choice questions. The first asked how worried respondents were about a range of possible problems, only some of which relate to work-life balance issues. The second asked whether people had, or expected to have, experience of specific factors that usually result from work-life balance issues.

The general concerns of respondents are shown in Fig.2 and detailed in the answers to Question 6 in the Appendices. The biggest area of concern was whether people would get a

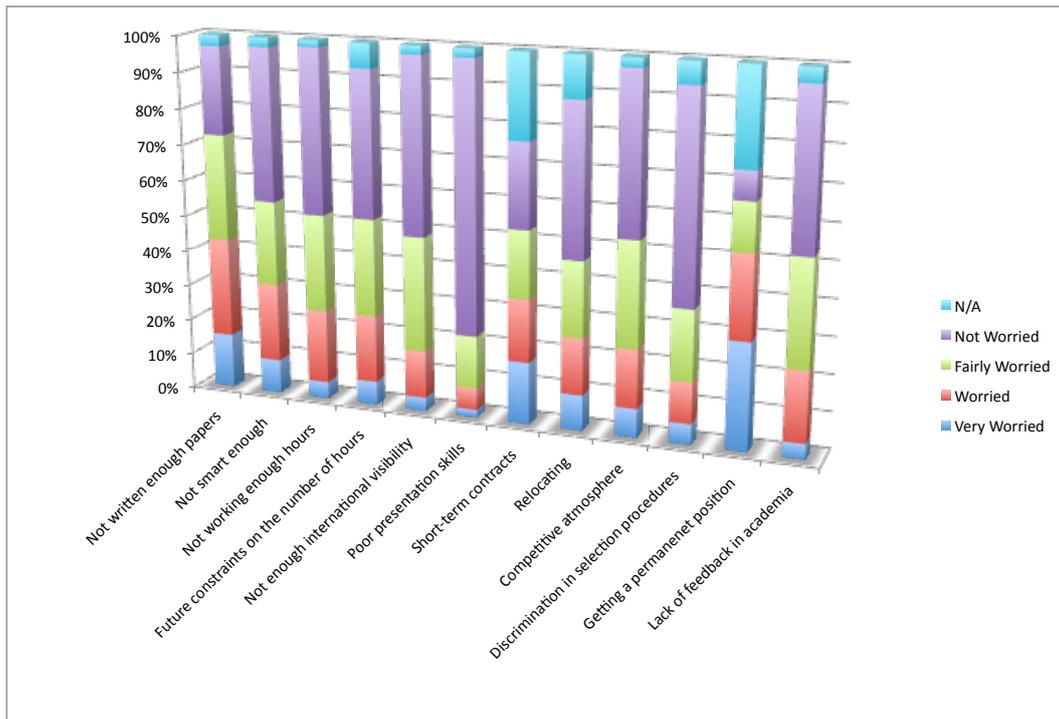


Figure 2: The career concerns of our respondents. The vertical axis shows the percentage of the respondents very worried/worried/fairly worried/not worried about the issue on the horizontal axis.

permanent position in the end, with 40 per cent of those for whom this was applicable “Very worried”, and more than half of all respondents “Worried” or “Very worried”. A related concern was “Not happy on short term contracts” about which over half of applicable respondents were “Worried” or “Very worried”. UK astronomy has by construction a large fraction of PhD students, who usually then do two or three postdoctoral short-term contracts before a small fraction of them can get a lectureship position. This up-or-out structure is therefore the major cause of discomfort and we speculate that this places a significant pressure on the balance between life and work. One free-form response to this question said “Fear that by taking the risk of having children before attaining a permanent position it will be virtually impossible to secure further postdocs.”

The next biggest concern was “Not written enough papers”, with most respondents worried at some level. This could be a general concern about productivity, or an indication that people perceive themselves to be judged more on quantity than quality. The latter was certainly the impression given by Workshop participants. One free-form response suggested that participation in big projects doesn’t always lead to sufficient credit (see discussion in Lahav 2001). Since the majority of respondents have less than three years of postdoctoral experience this is likely an oversimplified view of the actualities of assessment. However, the increased use of bibliometrics in research assessment will eventually place related pressures on us all regardless of the current methods. It is therefore essential for the wellbeing of astronomers that any such quantitative measures can incorporate effectively any mitigating work-life balance factors. At the workshop it was generally perceived that this is currently not well handled. This is discussed further in the following Sections.

Reassuringly, about half of respondents were “Not worried” that they were “Not smart

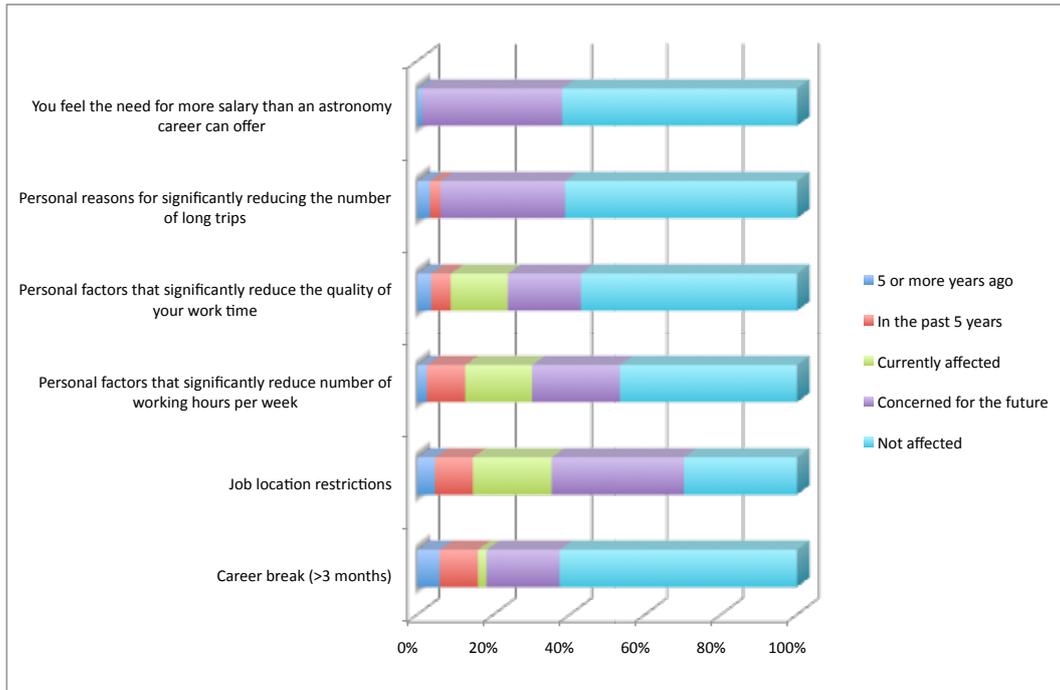


Figure 3: Personal factors affecting our respondents that create difficulties in balancing work with other responsibilities.

enough”. A similar fraction were unworried that the number of hours they work was too small to advance their career. This is either a sign that pressure to work long hours not strong, or that people are already working so many hours that they couldn’t work any more anyway. The competitive atmosphere and lack of feedback in academia were less significant than the above concerns. The majority of people are not concerned about discrimination in selection procedures, although 5 per cent of UK astronomy respondents were “Very worried” and 10 per cent of UK female astronomy respondents were “Very worried”. Respondents were least worried about poor presentation skills hampering their academic progression.

## Prevalence of work-life factors

We suggested six general ways in which life factors can impact on work and asked whether people were affected in the past or were concerned for the future. The responses are summarised in Fig. 3 and detailed in the answers to Question 7 given in the Appendices.

The issue affecting the most people was “Job location restrictions”. This is often caused by the difficulty of getting a job in a location accessible by a spouse or partner, which is often referred to as the “two-body problem” in reference to classical mechanics calculations. The majority of people answering the Survey are affected. For example, 40 per cent of UK astronomer respondents were concerned about this for the future, whether male or female. However, 40 per cent of male UK astronomers were “Not affected” and 25 per cent of female UK astronomers were “Not affected”. 55 per cent of UK astronomer women were affected<sup>2</sup> by personal factors that significantly reduce the number of working hours per week and 40 per

<sup>2</sup>Multiple boxes on this question could be checked, so in this subsection we calculate “affected” percentages using the total response count minus the number of people “Not affected”.

cent of UK astronomer men were affected.

About half of respondents were affected by personal reasons for significantly reducing the number of long trips per year, with about 20 per cent “Currently affected”. 40 per cent of UK astronomers are affected by factors that significantly reduce the quality of work time (e.g. illness or sleep deprivation due to caring). These statistics were similar for men and women.

Up to 30 per cent of UK astronomy female respondents are currently, or have in the past, been affected by a career break of more than three months, as have 8 per cent of UK astronomy men<sup>3</sup>. Similar percentages of each were concerned for the future. The lesser issue was salary, although more than 30 per cent of respondents were concerned about this for their future.

## Flexible working

We asked whether flexible working (e.g. half-time) was allowed in people’s current jobs and whether people would be happy to take it. Details of responses to this question (Question 11) can be found in the Appendices. Although this question was not mandatory, almost everyone answered it.

37 per cent of respondents were aware that flexible working (e.g. half-time) was allowed in their job, however 18 per cent of people believed that this was not possible [any stats on the facts we can compare here?]. About 45 per cent of respondents would feel comfortable taking this up but about 40 per cent would not. The responses were similar for both men and women.

There were 48 free-form answers to this question and many people highlighted arguments against working flexible hours including the impact on research quality, the loss of respect by colleagues, and financial implications.

## 3 Advice for Individuals

This Section summarises the results of the Survey.

### 3.1 Suggestions for how to deal with specific circumstances

#### Career Break

Question 9 made four suggestions for how to improve career prospects on return from a career break:

- Keeping in touch with research colleagues for a few hours a week during the break.
- Doing research for a few hours a week during the break.
- Asking for mentoring on returning from a career break.
- Volunteering to give talks and journal clubs on returning.

these are listed in decreasing order of popularity with survey respondents. For the sample who actually had a career break in the past the suggestion “Asking for mentoring...” was more popular (40% said “Very useful”) than for the full sample (26% said “Very useful”). This question assumed that you left while having a position to return to. It also assumed you had the option of doing a small amount work during the break. Several people commented that this should

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<sup>3</sup>These percentages were calculated by adding up the number of responses “5 or more years ago”, “In past 5 years” and “Currently affected” and dividing by the total number of respondents. However, since multiple boxes could be checked this gives only an upper limit on the percentages affected.

not be expected since sometimes it is not possible. Some commented that it is difficult to do work in small pieces. Others thought that giving talks on return from a career break was too soon and that new results should be obtained first.

There were 54 free-form responses to this question which are summarised here:

- Keep up to date with the literature
- Get colleagues to keep notes of new relevant literature
- Gradual return e.g. part-time for the first few months
- Allow around two years to get back into things
- Make sure you have a sabbatical or decreased non-research load for your return
- Get plenty of advice before taking the break
- Talk to your head of department before and after the break to ensure they understand (ensure e.g. you will have a desk when you get back)
- Attend conferences and make research visits on returning
- Attend seminars or conferences during the break
- Continue attending social events during the break
- Continue to supervise students and postdocs during the break
- Find co-supervisors or co-collaborators to help supervise students and postdocs during the break
- On returning, make a long-term plan
- Make a vacation email letting people know your status
- When you're fully back, let colleagues and collaborators know

## **Job Location Restrictions**

We summarise here the answers to question 10: “What self-help tips might help deal with job location restrictions?”. The following suggestions were provided:

- Work from home more and use telecon/videocon to collaborate
- Try to get a local visiting position to combine with your distant job
- Do short postdocs or sabbaticals away from home to improve international exposure
- Consider the train an extension of your office
- Change to a different area of astronomy
- Get a new partner

and were ranked by the survey responses in the above order of usefulness. 75 per cent of people thought that getting a new partner was useless or counterproductive. Of the 147 people who are or were in the past affected by job location restrictions: the option “Try to get a local visiting position...” was more popular (35% checked “Very useful” compared to 26% for the full survey group); the suggestion “Do short postdocs...” was mostly voted “Not very useful” by those who are or were affected by job location restrictions, whereas the full group thought it would be “Quite useful”.

There were 36 free-form responses to this question which highlighted the followign tips and difficulties related to job location restrictions.

Tips to deal with job location restrictions:

- Network efficiently
- Have a long term career plan (e.g. favour collaborations in city/country of choice)
- Apply for funding for collaborators to visit you

- Apply for fellowships (i.e. funding that is independent of location)
- Use flexible working time (e.g. work from home one day a week)

Difficulties with job location restrictions:

- Research requires face-to-face interaction with students and colleagues/ laboratory work; teleworking is therefore not always possible and can be counterproductive.
- Two body problem (finding jobs for a couple) is difficult in research

## Working Reduced Hours

We summarise here the answers to question 12: “What self-help tips would be useful for working reduced hours?”. The following suggestions were provided, ranked roughly in order of popularity:

- Keep in touch with colleagues
- Start work early, before everyone else gets in
- Get lots of postdocs to do the work for you
- Get lots of students to do the work for you
- Go on a time management course
- Stop going to seminars
- Write letter articles instead of full-length papers

However 25% of people thought that stopping going to seminars would be counter productive and 25% thought that getting students to do the work for you was either useless or counter productive.

There were 52 free-form answers, which we summarise here, with the most popular suggestions at the top of the list:

- Set yourself proportionally-reduced and manageable goals
- Set your priorities: focus on projects that will maximise impact & enjoyment. Don't compromise visibility!
- Don't take on too many responsibilities: stop doing or limit admin, committees, teaching etc
- The most difficult thing is finding long enough uninterrupted periods to do proper research: learn to say no to requests that impinge on your time for research
- Keep one day a week free from administration and devote it to research only
- Work late/early, when there are fewer distractions and keep useless chatting to a minimum
- Focus and put effort in good time management: record progress, maintain a schedule, focus on one project at a time, share tasks with a colleague in a similar field
- Increase programming efficiency! Debugging takes up a lot of time!
- Work from home, when children are asleep.
- Take the money and work less. You can make up for it once the demands on your time have lessened. One of the benefits of academic jobs is flexibility and the fact no one gets sacked.

The most commonly suggested difficulties were:

- For some positions, reduced hours not possible. Have to compromise pay vs. reduced hours.
- Having lots of postdocs & students requires funding and time, so not always an option!

## **Coping with reduced quality of work time**

Question 13 asked “What self-help tips would be useful for coping with reduced quality of work time (e.g. sleep deprivation)?”. There were 5 suggested solutions:

- Make a detailed plan in any brief quality moment and stick to it
- Network with people
- Tidy office, email, laptop
- Read articles
- Write a review article

which were ranked roughly in the above order of usefulness. The results were very similar whether or not they were filtered on people who had experienced reduced quality of work time in the past or present.

There were 39 free-form answers which we summarise here, with the most popular suggestions at the top of the list:

- Identify higher quality hours in each day and use them for the hardest tasks
- Keep a list of easier jobs to follow when you're not at your best (e.g. tidying, editing figures)
- Address the problem directly (e.g. Give yourself a few days off and get some rest or clear your mind. Don't be pressured into thinking you can't take time off. Work flexible hours to catch up on sleep.)
- Prioritize ruthlessly
- Keep track of deadlines and obligations
- Work in short concentrated bursts e.g. 30 minutes hard work then 10 minutes break
- Decide your most important to-do item for the day and be sure to do it
- Do the important big thing in the morning so you feel good afterwards
- Find reasons to stay positive!
- Open the window
- Do some exercise during lunch to beat off tiredness
- Take a power nap
- Make your issues clear to your manager
- Be realistic - don't kid yourself you're at your peak and don't beat yourself up
- Learn stress-reduction techniques
- Organise a journal club about new papers so you can benefit from information from others
- Reduce the number of projects before the quality of your time is reduced
- Redistribute responsibilities within collaborations
- Improve time-management skills
- Restrict yourself to fewer to-do items per day (2 or 3)

## **Reduced number of long trips**

Here we summarise answers to question 14: “What self-help tips would help with a reduced number of long trips?”. The following ideas were suggested in the question:

- Combine many events into a single trip
- Prioritise meetings which are short or local
- Still go to big meetings but only show up for a day or two
- Give talks by telecon/videocon
- Send slides to a colleague to present on your behalf

ranked roughly according to popularity above. Some commented that combining many events into a single trip doesn't work well if you have children. Others expressed annoyance at people who turn up to meetings only to give their own talk. Of those who have or had reasons for reducing the number of long trips the results were similar to the full survey, but the top two suggestions above were reversed in popularity.

We summarise the additional 35 free-form responses as follows

- Carefully select trips to maximise their impact on your career (relevance of topic, exposure of talk slot, importance of meeting, other participants)
- Remember that the most important part of a meeting is talking to people in the breaks - make good use of the breaks
- Go to medium-sized focussed meetings
- Workshops are much more useful than conferences because there is more networking and learning
- Short visits to collaborators can be more useful than big conferences
- Sent students and postdocs in your place
- Travel early morning / late evening to reduce the number of nights away
- Improve remote access to observing facilities and/or make them robotic
- Make better use of technology e.g. videocon, wikis, blogs
- Skip some talks to have meetings with collaborators
- Ensure meetings have a specific agenda with targets and named people responsible to avoid repetitive discussions
- Take children with you to the meetings and combine it with a holiday
- Enjoy not travelling!

### **Earning less money than you would like**

We summarise here the answers to question 15: "What self-help tips might help you cope with earning less money than you would like?". The following suggestions were provided, ranked roughly in order of popularity:

- Move somewhere cheaper and commute
- Get relatives to carry out your caring responsibilities
- Do consulting work in the evenings and weekends

however, none of these were found very useful by more than 10% of the respondents.

There were 45 free-form answers which we summarise here. The suggested tips, with the most popular suggestions at the top of the list, were

- UK astronomers do not earn badly relatively to other professions, but nobody gets rich this way, so lower your expectations
- Budget
- Consider career sidelines (e.g., consulting, freelance writing, ghost writing, illustration, etc)
- Take advantage of university offers/subsidies as much as possible and lobby for extra benefits, e.g. having leftover annual leave paid out, new computer, paying for home internet connection etc
- Change job
- Find a partner who has a more lucrative career
- Apply to the local council for an allotment

Difficulties identified were

- In astronomy most people live far away from their families, so sharing caring responsibilities with them is an option for very few
- Academic jobs are very demanding and so increasing the workload could be counterproductive

## 3.2 Techniques for Success

### Improving the amount achievable in a working day

We summarise here the answers to question 16: “What advice do you have for improving the amount achievable in a working day?”. The following suggestions were provided, ranked roughly in order of popularity

- Make a to-do list
- Agree to fewer administrative responsibilities
- Check email less frequently
- Ask administrators to do more (e.g. travel arrangements)
- Only tackle doable projects
- Get training in debugging computer code

There were 45 free-form answers which we summarise here, with the most popular suggestions at the top of the list:

- Delegate responsibilities (and the associated authority) where possible - need a good team! Stop doing things, like finance, that you have not been trained for!
- If admin is really unavoidable, do it as badly as you can and still get away with it.
- Avoid distractions: working from home/library; use a 'Do Not Disturb' sign - have some 'quiet' time alone in the office (early or late in the day); restrict 'chatting' to certain times (including work talk); stop using Facebook (or similar); have policy of silence in shared offices (i.e. no long telecons in the office);
- Set up good email filters to help manage inbox size & have a set, limited time for checking emails. Also, encourage colleagues to be less reliant on immediate email responses.
- Have realistic & prioritised day, week and month “To-Do” lists and focus on one thing at a time - do the big jobs first. Practice calculated neglect of things which don't need to be done immediately.
- Have a “done” list to feel good about achievements & reward yourself.
- Use project management methods.
- Save activities requiring less concentration for times when you are not at your peak (e.g. just after lunch).
- Organise “meeting days” to not have day broken up by meetings, similarly for student supervisions.
- Work with collaborators to set reasonable internal deadlines.
- Concentrate duties, freeing up longer periods of time for research.
- Minimise commuting.
- Keep your desk tidy.
- Go to work regularly, but take your small child with you.
- Get computing training tailored to you field.
- Seek help for stress management. This can help improve productivity in general.

## How to prioritise different activities

We summarise here the answers to the question “What advice do you have for how to prioritise different activities?”. The following given activities were ranked roughly in the following order:

- Conferences and workshops
- Networking beyond your institution
- Debugging code
- Collaboration telecons
- Coffee or lunch with colleagues
- Seminars
- Review panels and refereeing

There were 37 free-form answers, which we summarise here, with the most popular suggestions/activities with highest priority at the top of the list:

- Priorities clearly vary by stage and character of career, debugging code is for some less important than analysing data etc.
- Grant and job applications
- Reading papers
- Writing papers has a very high priority. Try to get one single-authored paper out each year.
- Meeting with PhD students/postdocs to review work, if you spend an extra hour with them per week they could do 20 hours of good research out of it!
- Deliver what you say you will, when you say you will - establish a reputation for being useful by actually being useful!
- Prioritise according to both the importance and the urgency of tasks!
- Match your to-do list to the chunks of time you have available - short chunks are good for clearing the admin pile.
- Discussing work with colleagues is extremely important.

## Improving your CV

We summarise here the answers to the question “What advice do you have for improving your CV?”, with the most popular roughly at the top:

- Keep your CV up to date whenever you do something new
- Look at other CVs on the web
- Arrange a meeting with a colleague to discuss your CV
- Go to a CV workshop

Several answers found going to workshops useless.

There were 28 free-form answers, which we summarise here, with the most popular at the top of the list:

- Get a careers advisor within your host institution or via your undergraduate/postgraduate institution. But make sure it's tailored to your field, generic advice is useless.
- Tailor CV to jobs you are looking for.
- Choose your extra activities (teaching, organizing workshops, etc) with an eye towards how they will look on your CV.
- Ask multiple successful peers for copies of their CVs and/or for advice about yours.

- Understand what the CV is for: e.g. sit on appointments panels to get experience of CVs from the other side.
- A CV only works if people see it, make sure you give it/send it out appropriately or put it on the web.
- Learn about a job before you apply so you know what they are looking for.
- Keep it brief.
- Work out what you are already strong on and where you need to fill in the gaps, and make a plan with specific targets and deadlines for how you will obtain the necessary accomplishments.

### Using technology to raise your profile

We summarise here the answers to the question “How can technology help to raise your profile?”, with the most popular suggestions roughly at the top:

- Use email to collaborate with people all over the world
- Keep web page up to date
- Participate in teleconferences
- Participate in videoconferences
- Contribute to discussion forums
- View recorded conference talks online
- Record a podcast of your recent paper
- Write a blog
- Keep facebook profile up-to-date

where recording a podcast, writing a blog and keeping facebook up-to-date was found useless by 27%, 31% and 49% of the respondents!

There were 28 free-form answers, which we summarise here, with the most popular at the top of the list:

- Technology not as useful as actually going to conferences and presenting papers, writing more papers...
- Publish papers on astro-ph.
- Use work-related wiki pages for collaborative projects.
- Twitter about your research, papers, conferences, etc.
- Contribute to mailing lists and newsletters.
- Use ADS utilities to keep publication list link up to date.
- Keep up the group webpage.
- Use a computer diary and colour-code different types of activities.
- Cestagi (<http://www.cestagi.com/>) is an online profile manager and other alternatives are being developed as part of the Roberts review

## 4 Recommendations to Decision Makers

In this Section we attempt to distill the Survey responses and the discussions at the Workshop. A more detailed list of survey responses on this topic can be found in the Appendices, where there is also a copy of the flipchart contents generated at the workshop on this topic.

## 4.1 Job security

The survey highlighted acute concern about long-term career prospects. This places a pressure to shift work-life balance in favour of work, and acts to deter people who are not prepared to make life sacrifices. The number of PhD studentships in UK astronomy is relatively high due to the perceived importance of this type of training for the UK workforce. However it can lead to widespread disappointment and disillusionment among PhD students and new postdoctoral researchers.

There are two problems beyond PhD level (i) the short-term contracts for postdoctoral researchers (ii) the steep up-or-out pyramid structure of recruitment between PhD and permanent positions. Even if the second of these could be solved, there would still be work-life balance issues with the first. The second might be helped by converting some of the money for PhD studentships into Masters studentships, so people can assess earlier whether or not to embark on this career. Funding bodies and universities can help with the first problem by providing clear and stable support for flexible working, including transparent rules on extending grant support to cover career breaks and use of grants for part-time employment. Increasing the length of funding awards would significantly help junior researchers. Funding agencies could help by monitoring institutional responsibilities taken for postdoctoral researchers with regard to length of contracts and flexible working. Funding bodies and academics making appointments could aim to convert the pyramid structure into more of a funnel from PhD to long-term support roles.

## 4.2 Productivity assessment

As highlighted both in the Survey and the Workshop, the number of publications is seen to be a very important statistic in recruitment. It is well known that it is flawed in many ways, at least by failing to take into account quality of work and differences between types of research (e.g. observational versus theoretical). Increasing sophistication of bibliometric tools can take into account citation rates to improve the former. The latter is worse the larger the range of backgrounds of the applicants, for example for fellowships; diversity of backgrounds on selection panels is therefore very important, both from different research fields and from different types of research. General advice or statistics on assessing productivity from different types of background would be helpful.

Of particular relevance to this report is the impact of life factors on productivity measures. Selection panels need to actively look on a CV and in reference letters for indications of mitigating circumstances so they can be taken into account. Some considered advice on how to take these into account would be helpful. For Fellowships it would help to have someone on the panel who has had a career break.

## 4.3 Career Breaks

Career breaks or part-time working at PhD or postdoctoral level, for example to have a family, are perceived to be a major obstacle to continuing in astronomy in the longer term. Positive examples where researchers have successfully continued beyond these do not seem to be well known. This is important both as role models for students and postdoctoral researchers, but also for faculty making hiring decisions. We were lucky to have talks by three such people at the meeting, and many felt this was the most inspiring part of the day.

Even with transparent reliable replacement funding in place to cover career breaks it is not clear that potential employers will see two otherwise identical applicants in the same light, if one appears more likely to take a career break during the contract (e.g. is female) and the other is perceived as less likely. Providing additional incentives, for example extra funding to cover catching-up time, could help. The increased availability and uptake of paternity leave would render this a more gender-neutral issue. As discussed in the previous subsection, the impact of work-life balance issues on past productivity needs to be properly taken into account to inform assessment of future results.

A number of schemes exist to help people looking for flexible employment. The UK astronomy funding agency STFC has a scheme for Returner Fellowships which recommends a period of absence of at least two years for eligibility. [some comment on statistics of uptake?] A shorter requirement for absence and some accounting for flexible working would likely result in greater uptake and therefore greater benefit to the UK astronomy community.

## 4.4 Other Support

Researchers routinely carry out many tasks that could be carried out by administrators, from filling in application forms to administering grants and organising teaching. To allow researchers to achieve research goals a larger number of administrators is needed. In addition, full-economic costing money obtained through grants needs to be effectively channeled into reducing teaching loads in accordance with the amount awarded. Funding agencies could hold universities to account on their policy for distributing this money.

Despite a general suspicion of training courses, it was generally felt at the Workshop that researchers at all levels should take up more advice from existing courses including those run by Universities. Particular topics include advice on Human Resources Policies, Unions and Careers Advice on non-academic positions. University appraisal schemes for students and postdocs need to be in place and used effectively. Funding agencies could provide guidelines and ask Universities to report on how their policies match up to the guidelines. It is not clear that appraisals by line-managers is the most effective way to help researchers. For example, interviews of PhD students by staff in peripheral research areas has been found useful. Faculty members themselves need to go on management training courses.

Institutional childcare provision is mostly very inadequate compared to demand and needs to be increased. Furthermore institutions could increase the childcare subsidies for students and postdoctoral researchers and additional childcare subsidies could be provided by funding agencies. These are both important so that early career researchers with families can afford to work more hours if they so wish. Breastmilk expression rooms (not toilets) and storage in clean fridges or freezers is recommended, in addition to rest areas. We had a breastmilk expression room available at the workshop, but we have not seen this at other meetings before. University childcare options for organisers of meetings would also be useful. For example some people attending this workshop would have found it useful if we had been able to provide childcare on site at the meeting.

It is extremely difficult to think of satisfactory solutions to the two-body problem. Universities could consider creating twin positions, as is carried out sometimes in the U.S. Increasing the number of personal fellowships as well as creating more positions with the option of sharing responsibilities between two different institutes would provide greater geographical flexibility.

## 5 Conclusions

The “Work-Life Balance” topic seemed to generate a very positive response. This is evidenced by the large number of people completing the Survey (more than 400) and the number of people attending the Workshop (about 40). Despite the fact that only the first seven Survey questions were mandatory, the vast majority (over 400 people) answered most of the multiple choice questions, continuing down to question 25. This was despite the fact that many of the multiple choice questions were about work-life balance issues that did not affect the individuals concerned. It was felt important to raise awareness and levels of discussion of these issues and we hope that the existence of the Survey and Workshop went some way towards this. The importance of leadership on these issues from the top levels was stressed at the Workshop, for example it is helpful when research leaders openly take up vacation time, parental leave and part-time working.

There are existing reports and recommendations on how decision makers can help improve the environment for women in research. In particular the Athena SWAN Charter system and Project JUNO run by the Institute of Physics following their successful Site Visit scheme. Many of these recommendations would help all, not just women, with work-life balance issues. In addition a recent report in the US (Zakamska et al. 2009) discusses challenges facing young astronomy researchers, many of which resonate with the topics in this document. [ideally add more comparing and contrasting with these docs]

At the Workshop many agreed on the importance of keeping this a gender-free issue. It would be beneficial if men were encouraged to take part in committees and panels such as the organising committee for our Workshop and Survey and the STFC Women in SET Focus Group. On the other hand it would clearly be beneficial to have women better represented on senior levels and in assessment committees.

Several people expressed an interest in organising future Work-Life Balance Workshops, for example at the National Astronomy Meeting, or a version aimed at particle physicists. However, funding for such events would be necessary. We hope this money can be found.

## Acknowledgements

SLB acknowledges funding for the workshop and survey from a UNESCO-L’Oreal For Women in Science Fellowship. We are extremely grateful to all respondents to the survey and participants at the meeting, without whom this document would not be possible. We also thank to the SFTC WISET group who encouraged us to put together this report. Thanks also to many people for many informal conversations on these topics over the past few months.

## A The survey questions

[www.sarahbridle.net/wlba09/Survey\\_Questions.pdf](http://www.sarahbridle.net/wlba09/Survey_Questions.pdf)

## B Collated statistics - all respondents

The survey was advertised to all UK astronomy departments by emailing a representative from each department who circulated the information. s

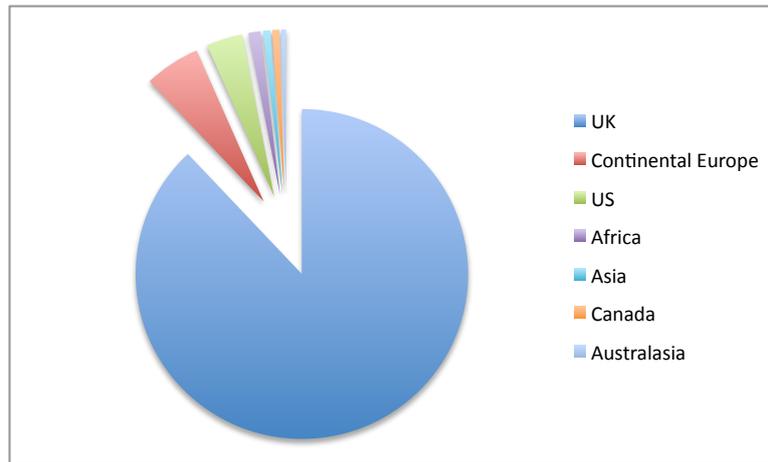


Figure 4: The workplace location distribution of our respondents.

An age histogram for the complete set of respondents is shown in Fig. 5 split on gender. At the lower levels it matches well with the balanced fraction of men and women in academia. We see a possible under-representation of women in the 36 to 45 year category, and a possible over-representation in the larger age categories. However, the majority of respondents are under 35 and well-balanced between men and women.

A list of possible concerns was provided:

- (52%) Would I get a permanent position in the end? (if you don't already have one)
- (43%) Not written enough papers
- (31%) Not smart enough
- (28%) Not happy on short-term contracts
- (25%) Not prepared to relocate
- (25%) Future constraints on the number of hours I can work (e.g. caring responsibilities)
- (25%) Not working enough hours
- (24%) Not keen on competitive atmosphere
- (23%) Lack of feedback in academia
- (17%) Not enough international visibility
- (16%) Discrimination in selection procedures
- (8%) Poor presentation skills

percentages of people “Very worried” or “Worried” are given in brackets (see also Figure ??). Note that the two concerns “Would I get a permanent position?” and “Not happy on short-term contracts” did not apply to about 25% of respondents, so of the people to whom the concern was applicable, the fraction who were worried was higher, e.g. 70% of people without a permanent position were “Very worried” or “Worried” about whether they would get a permanent

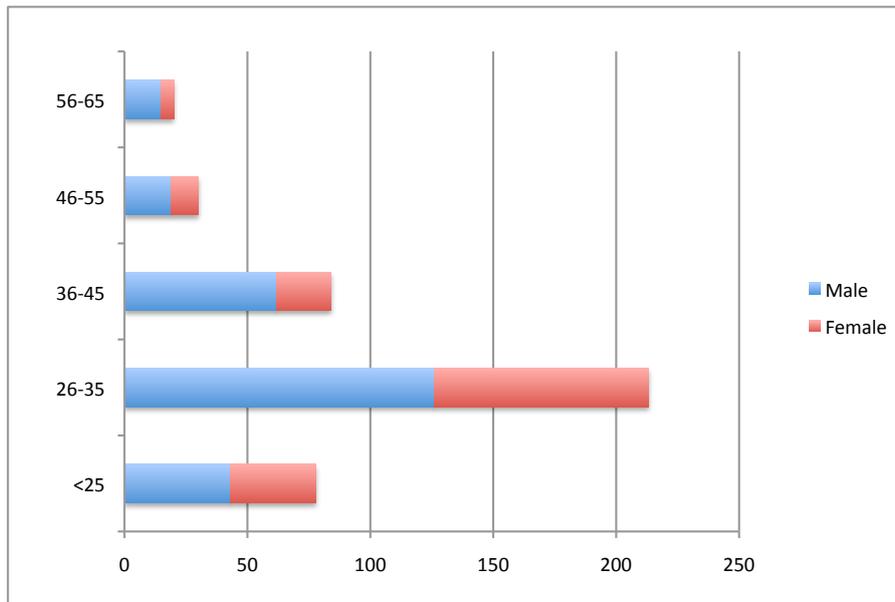


Figure 5: The proportions of respondents in each age group (as set by the questionnaire). Also shown are the proportions of men and women in each age group. Roughly one can compare this to the gender representation of these age groups in reality and perhaps find that women were slightly more likely to answer this survey, especially in the older age groups.

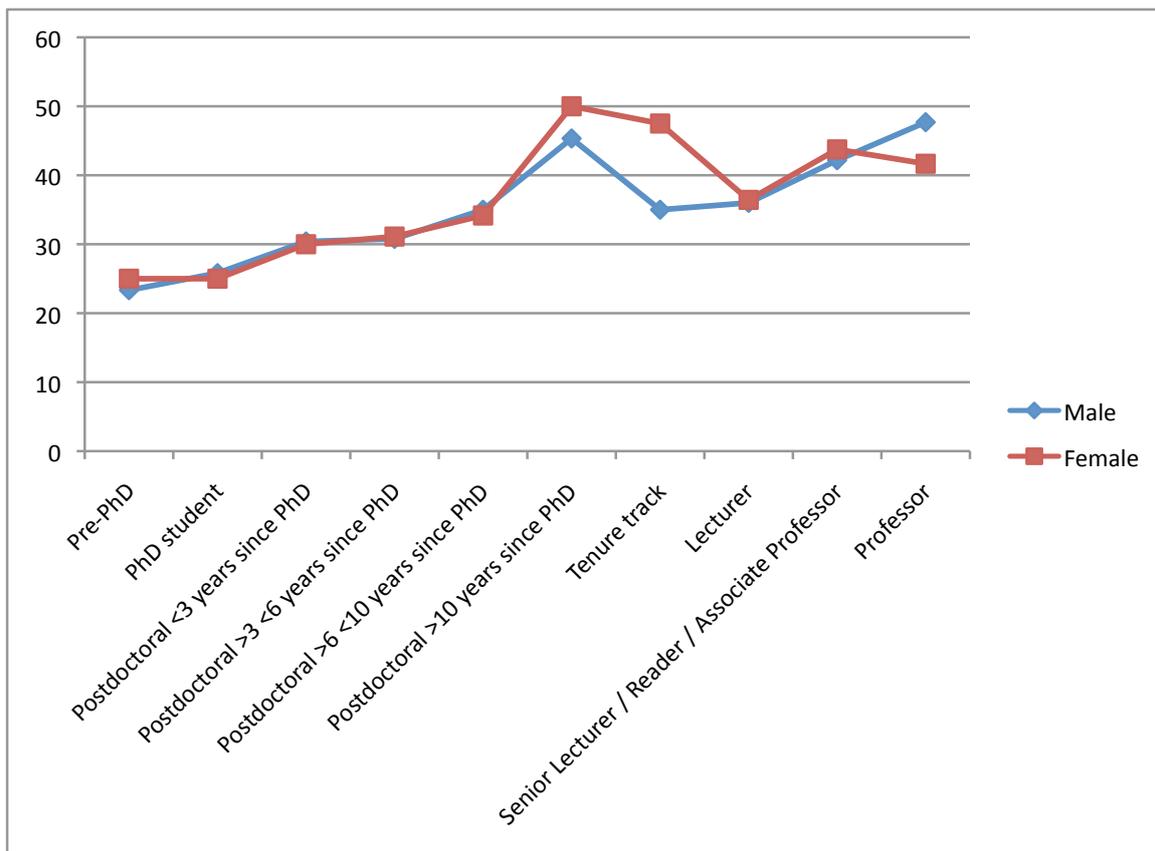


Figure 6: The “average” age for seniority levels of our respondents.

position in the end and 40% were “Very worried”.

Additional concerns raised in the free-form response included:

- Lack of any career structure and lack of management and professional development mentoring by department
- Fear that by taking the risk of having children before attaining a permanent position it will be virtually impossible to secure further postdocs.
- Capability to obtain research grant funding
- Discrimination by students when selecting a supervisor
- Getting credit for contributions in large projects, no opportunity for original research in instrumentation career
- Too much emphasis on project work rather than time available for research

Six work-life balance issues were suggested

- Career break (less than 3 months)
- Job location restrictions
- Personal factors that significantly reduce number of working hours per week
- Personal factors that significantly reduce the quality of your work time (e.g. illness or sleep deprivation due to caring)
- Personal reasons for significantly reducing the number of long trips per year
- You feel the need for more salary than an astronomy career can offer

and for each of the above over 100 people were affected (see also . The 18 free-form responses gave more detail on individual respondents circumstances (not provided in this report) and re-enforced the above list.

Reasons against flexible working were:

- Impact on quality of research (11)
- Loss of respect/consideration and marginalisation from other colleagues and superiors (11)
- Salary too low to consider pay cut / Pension & Benefits reduced (5).

Other concerns with flexible working were

- Impossible with current level of responsibility (2)
- In practise, flexible time means working the same amount and being paid less (2)
- Flexible working hours (i.e. evenings/weekends) rather than reduced working hours more adapted to research (2)
- Establishment’s policy not clear (1)

[http://www.sarahbridle.net/wlba09/SurveySummary\\_09102009.pdf](http://www.sarahbridle.net/wlba09/SurveySummary_09102009.pdf)

## **C Collated statistics - only UK astronomers**

This is the sample that the survey was comprehensively sent to.

[http://www.sarahbridle.net/wlba09/SurveySummary\\_09102009\\_UKastronomers.pdf](http://www.sarahbridle.net/wlba09/SurveySummary_09102009_UKastronomers.pdf)

## **D Collated statistics - people with less than 50% chance of coming to the meeting**

[http://www.sarahbridle.net/wlba09/SurveySummary\\_09102009\\_50pccoming.pdf](http://www.sarahbridle.net/wlba09/SurveySummary_09102009_50pccoming.pdf)

## E Survey Report

### E.1 Recommended Resources

The following resources were suggested by survey respondents

- David Allen - Getting Things Done (8 people suggested this)
- PhD comics
- Randy Pausch - Time Management
- Mark Forster - Do it tomorrow (short book on time-management)
- <http://www.positivityblog.com>
- <http://www.presentationzen.com/presentationzen>
- <http://www.ted.com>
- Google Calendar and Google tasks
- The 60-minute Father
- Mehr Zeit fuer das Wesentliche von Lothar J. Seiwert von MI
- 43Folders.com, 43Things.com, 43Places.com
- [lifehacker.com](http://lifehacker.com)
- Attend a springboard/navigator personal and professional development course - run by most big institutions and universities. Great for re-assessing things, networking, time-management etc
- I recommend the opera singer Renee Fleming's autobiography "Renee Fleming: The Inner Voice, Notes from a Life Onstage". It has lots of information about how she has managed to combine bringing up her children with an extremely high-pressure career.
- Time Management course run by Steve Creffield at Sussex University was fantastic.
- [www.vitae.ac.uk](http://www.vitae.ac.uk) especially "The balanced researcher" (Hugh Kearns and Maria Gardiner) <http://www.vitae.ac.uk/CMS/files/Vitae-Balanced-Researcher-June-2008.pdf>
- Time to think - Nancy Kline
- "Time for Research" and "Defeating Self-Sabotage" available from <http://www.ithinkwell.com.au/b>
- Nice girls don't get the corner office: 101 Unconscious Mistakes Women Make That Sabotage Their Careers, Lois Frankel

### E.2 Suggestions for employers and funding bodies

There were 93 free form answers to question 22, which provided suggestions to employers and funding bodies on the following topics (note that the number in brackets is the number of times a suggestion like this appeared):

#### Positions

- Increase length of work contracts in early career (10)
- When hiring, use other metrics such that publication list to indicate productivity; have specific guidelines for assessing productivity of part-time scientists (7)
- Create twin positions to cater for two body problem (6)
- Increase number of fellowships for returning scientists (5)
- Increase number of personal fellowship (5)
- Increase salaries (3)
- Consider job sharing schemes (2)
- Increase number of permanent positions (2)
- Create teaching-free positions / reduce teaching load (2)

- Limit number of PhD students (2)
- Limit number of Postdocs (2)
- Make tenure track conditions clear to all (2)
- Provide extensions to contracts for parental leave (1)
- Increase tenure track opportunities (1)
- Increase number of summer students (1)
- Increase length of PhDs, to become competitive with American PhDs. (1)
- Create shared-institute positions (1)

## **Career Support**

- Make establishment's position on flexible time and work-life balance clear and have part-time specific managerial guidelines (13)
- Provide work-life balance specific and general career advice (5)
- Increase career opportunities in peripheral fields (outreach, journalism, teaching, etc...) (3)
- Provide non-academic career advice (3)
- Increase managerial training of senior scientists (2)
- Departments sign up to Athena SWAN / Juno and carry out internal audits of the culture (1)
- Provide time-managing courses early on in career (1)

## **Funding**

- Reduce administrative tasks related to grant applications (6)
- Increase funding (1)
- Make sure funding is available on due time (1)
- Count telescope time awards as research grant income (1)

## **Admin/Support**

- Promote support activities to prevent administrative overloading of researchers and inadequate staffing (8)
- Reduce administrative tasks related to grant applications (6)
- Promote remote observing trips (1)

## **Family life**

- Provide subsidised and/or local child care (5)
- Promote parental leave (4) (and call it parental and not maternal)
- Provide on-site parent facilities (i.e., specific rooms for breast-feeding, etc.);
- Allow older children to accompany parents in summer(2)

## **On-site facilities**

- Provide on-site parent facilities (i.e., specific rooms for breast-feeding, etc.);
- Allow older children to accompany parents in summer (2)
- Have a quiet area at work where staff can nap (1)

## Observing

- Promote remote observing trips (1)

## E.3 Additional comments

### Competitiveness & Goal Oriented-ness

- The best situation would be to have colleagues helping each other with the support of senior staff. However, astronomy is very competitive and this often directly or indirectly prevents people from doing so. The competition is too high to encourage good science and spoils the fun of doing it.
- By improving your productivity you put yourself ahead of the pack, but this just sets the bar ever higher for those who follow. Those with a more balanced life are perforce disadvantaged.
- Astronomy is goal oriented. No-one can reasonably expect their university not to encourage and reward those who can give the most in terms of time and effort.
- Quality is much more important than quantity! Professional assessment needs to be based on proper personality profiling, if we are interested in building our science based on principles of good practice and the drive for innovation through curiosity (rather than maximising performance indicators & polishing CVs).

### Permanent positions

- We need more fellowships and funded positions for people that had to take a career break or have been working part time (e.g. for family reasons) or needed to relocate without a job due to the 2-body problem. These fellowships are often a great stepping stone to permanency.
- The ratio of postdocs/ permanent jobs is too low, the success rates for fellowships are pointlessly-low, there isn't enough feedback from application processes, there's too much nepotism/inside-jobs. Until these things are sorted out, young astronomers will always feel like they have to work every second of the day just to get their noses in front. Making future plans in such cases is very hard.
- In increasingly more common large collaborations individual contributions are hard for employers to distinguish. There are no safe-guards for people on short contracts in these circumstances.
- There should, arguably, be more accessible paths to permanency for some contract staff that have not had purely academic paths.
- A fundamental problem with academic careers is the overly long 'qualification phase' and the lack of job security. Make self-directed research mandatory immediately after a PhD (if not earlier) and provide much stronger career support after a selection phase that does not exceed 5 years (while allowing off-the-track entry options).

### Family life

- For young professors, their time to tenure should be extended in recognition of the importance of spending time with their children while encouraging women to go into the professoriate.

- Universities should take a more active role in ensuring the a family's needs are met, e.g. providing discounted childcare, either on the premises or somewhere nearby.
- Concordat and its previous incarnations have done nothing for contract researchers (with the single exception quite some time ago of giving decent maternity leave arrangements)!
- Family life is always more important than a career! For this reason one must make compromises at work!

### Advantages

- There is choice. Working on mostly theory probably gives one more flexibility (e.g. there are no big collaborations).
- There are a lot fewer fixed deadlines and day-to-day stressful situations in research than in other profession
- The pay is not bad.

### A gender issue

- Many women are forced to take career breaks or part-time positions because of a lack of options/cultural pressures.
- Men might experience the corresponding pressure *not* to take a greater share of them.
- Would be interesting to see statistics about maternity vs. paternity leave.

### Other

- How do you build stress management, exercise etc. into a career?
- One can try FREEMIND software (mindmapping) instead of todo-lists and little papers.

# F Contents of Workshop Flipcharts

## F.1 Personal Issues around WLBA

### Breakout 1: Brainstorming personal issues

#### Sheet 1

- Relocation
- Career breaks
- Awareness of colleagues
- Long working hours
- Always “on” culture
- Dealing with feedback when its mostly negative!
- CV non-traditional
- Co-ordinating dual careers

#### Sheet 2

- Family above job?
- Hard to unwind - have fun
- Want to appear efficient
- Do you have to work evenings and weekends?
- Deadlines evening work harder with children and upset partner
- Dealing with guilt - doing enough work?

#### Sheet 3

- Guilt at not working enough
- Not being able to keep up with the “competition”
- Paying for the “privelage” of working - cost of childcare
- Worry about impact of PT work/career break on research record/papers → appointments?
- Lack of sucessful role models - many have dysfunctional lifestyles
- No support from faculty
- Don’t like the competitiveness
- Issues with advisors - lack of (management) training?
- “Two-body” problem
- Stigma associated with working part-time
- Male appointment committees
- Univ/dept childcare/creche vastly oversubscribed
- Not being able to bring children into work (sometimes)

#### Sheet 4

- Decisions relating to career breaks
- Time management
- Need to travel a lot
- Financial insecurity relating to short-term contracts
- Planning for the future
- Keeping work out of your personal life

## Sheet 5

- Long distance relationships
- Biological clock / reproduction
- Geographical ties
- Personal and professional development space
- Feedback on work progress
- Small town mentality

## Breakout 2: Suggestions for dealing with personal issues

### Sheet 1

- Talk about it with people and learn that others share your issues
- Ask for feedback
- Mentoring and career guidance even if you don't think you need one
- Set realistic goals, concrete, prioritise
- Learn to say "No". Prioritise but be prepared to re-prioritise
- Block off your work, not your life
- Time management books
- Switch off your email "beep"

### Sheet 2

- Talk about issues
- Making lists of what you are doing - think positively about your work
- Be realistic
- Give positive feedback and listen to it!
- Asking for feedback
- If you don't ask you don't get
- Being assertive
- Highlight unreasonable requests
- Decide your own level of commitment
- Don't beat yourself up
- Perspective
- Enjoy the journey

### Sheet 3

- Don't waste your time worrying
- Personal reflection on motivation
- Proactive mentoring and networking
- Learn good habits for handling stress - time; - priorities
- Managers should develop selves
- Take on managing of less experienced students to gain experience and confidence
- Know your employment/student rights
- Make use of induction at university to find out the above
- Remote working - read on govt policy and right to request

#### Sheet 4 Decisions relating to career breaks

- Be careful - risky
- Maintain contact
- Rebuild skills

#### Time management

- Free courses
- Learn to say no!
- Satisfied with “good enough”
- Give a definite time slot! know in advance
- Prioritise

#### Need to travel a lot

- Prioritise conferences near by
- Go to international conferences but just for one day maybe

#### Financial insecurity relating to short-term contracts

#### Planning for the future

- Inside info
- Try and be prepared, find person who’s advice you trust
- Say yes to helpful things
- Learn to say no
- Environment of dept. important to “suss” out people working with before

#### Sheet 5 Long distance relationships / geographical ties

- Work out priorities - firm with them
- Learn to say “no”
- Arranging work that is portable
- Use teleconferencing / videoconferencing facilities
- Self-discipline - create work environment
- Collaborate locally to home base

#### Biological clock/reproduction

- Don’t wait!
- Some advantages to having family young (flexibility/energy)
- Plan for help
- There is no “good” time to have a family
- Know your entitlement!
- Show people it can be done

#### Personal and professional development space

- Work out where you need training/help most
- Get advice or feedback on what might help
- Get training on transferable skills
- Assertiveness/ teaching / management

#### Feedback on work progress

- Mentoring
- Supervisors need training!
- Students need constructive feedback
- Ask for feedback from students/ other colleagues

#### “Small town mentality”

- Network with people in other univ/depts in similar situation
- Make friends/contacts/sustain them

## F.2 Infrastructure Issues around WLBA

### Breakout 1: Brainstorming infrastructure issues

#### Sheet 1

- Childcare at institutions
- Continued career development post kids and care-giving
- Geographical expectations
- Logistical support for relocation
- Career recovery post astro career break
- Flexible working / non-linear career - we need:
  - more Dorothy Hodgkin;
  - engineering dept model;
  - paternity leave length;
  - career “pause” not 100% break
- Career advice - we need:
  - cambridge physics model;
  - AAS model
- Conflict resolution - we need:
  - actual management structure;
  - actual union representation

#### Sheet 2

- Flexible/normal hours, allowed?
- Pressure from above and colleagues
- Attitudes to location restrictions
- Short-term contracts, insecurity
- Changing the attitudes
- “Ironic” sexism
- Harrassment is still here
- Guidelines from funding bodies and universities on career breaks
- Childcare/eldercare etc
- Breastfeeding / pumping “facilities” vs attitudes

#### Sheet 3

- Health and safety vs childcare issues
- Females on interview panels
- Childcare timings - shorter days
- Childcare costs
- Commuting
- Research is most vulnerable part of work
- Publications are emphasized too much? - Project work hard to quantify
- Very competitive
- Takes time to train and get permanancy
- People management skills not considered?
- 2-body problem
- Part-time jobs / jobshare - not advertised/available
- Short-term contracts - moving often; difficult for personal circumstances
- Bias against women of childbearing age
- Grants: not open to all to hold

#### Sheet 4

- Lots of postdocs so may never lead to permanent job
- Applying for part-time position/lectureship only
- Rate of productivity (quantity and quality)
- Transparency of employment policy (tell about maternity leave?)
- Family - want permanent position

#### Sheet 5

- Creche facilities / lactation/ emergency childcare
- Job structure / career progression / length of contracts
- Feedback - is it reasonable to keep trying!?
- Maternity leave - eligibility; attitudes' impact of short term contracts;
- Writing a cv
- Paternity leave (attitude)
- Assessment criteria
- Scheduling/ working hours
- Part-time working - ensuring it is!; assessment (again)
- Keeping work out of your personal life

#### Breakout 3: Suggestions for external bodies

##### Sheet 1

- Better facilities for child care (on site) - cheap
- Advertise options for returners - existing women in physics RAS womens group, NAM
- Type into google "returning to astronomy" - this should come up
- After 4 years postdoc anywhere in UK Bristol gives you a permanent position
- Longer contracts
- Time wasted on applications
- Changing attitudes
- Long working hours - presenteeism
- No meetings outside of care hours or that require travel to meetings over the weekend
- Join your union

##### Sheet 2

- Stop making this purely a gender issue:
  - change to "diversity" panel?
  - include men on panel
  - equal parental leave
- Depts/faculties to discuss these issues explicitly
- Senior staff to lead by example
- Account for experience gained during career break
- Increase number of women on senior - level panels (more diversity of levels on panel)
- Clear, consistent stable policies from funders on extensions to contracts following leave
- Promotion decisions: base on regular systematic review of all staff
- Non-lecturer career track
- Men on organising committee of this type fo meeting
- Work-life balance lunch at NAM

### Sheet 3

- Compliance with legislation - in practice and in attitude
- Being informed: e.g. RAs need not be 2/3 years if funding continues
- For staff: inform and train staff about legal issues. Responsibility and management awareness
- Research councils should monitor institutional responsibility towards their RAs (personal fellowships)
- RCUK: Give universities training on coping with harassment

### Sheet 4

#### Universities

- Clarification of maternity policy for short-term contracts
- Careers advice for postdocs and PG students
- Bridging money between postdocs
- Suggestion from one member of group: Requirement of woman on hiring panels is hurting women - should be anyone with diversity with diversity training
- RAS: no "women's" lunch

#### Research councils

- Returner fellowships should be more flexible (e.g. criteria for length of break)
- More money into fellowships, less into studentships
- Soft money associated with PI for salary (e.g. HST, Chandra, Herchel grants)
- AFs and PDFs should go to UK people? EU?
- STFC funded MScs - people not intended for research careers?
- Suggestion from one member of the group: STFC central PhD student recruiting (cf UCAS) to ensure only best students are funded

### Sheet 5

#### Application procedures - STFC

- Standardisation of application (e.g. non special internet forms)
- State assessment criteria - STFC/dept for fellowships
- Give useful feedback (if got to a certain stage, for example)
- Notify people of rejections!
- Quality (of applicant) over quantity (of papers)

#### Childcare - university

- More provision
- All universities offer voucher schemes
- Take babies earlier than 6 months old

#### RAS women's group

- Do something similar to STATUS (AAS)?

#### Conferences - personal

- Encourage people to go
- Support their attendance
- Facilitate networking at them
- Small meetings are better

#### Seminars - dept. level

- Database for speakers
- Be proactive about inviting female speakers

Mentoring - dept. level

- Provide opportunities for informal mentoring / STFC provide

Statistics from women's focus group - STFC

- Get some/a man on committee
- Look at rolling grant hire - gender split? enforce good practice

Long hours culture - department

- Encourage take-up of paternity leave
- Set a good example yourself
- Rolling-over of holiday time