

Juno Champion Progress Summary April 2016

Warwick Physics Department

This report illustrates the continued progress in the Department of Physics at Warwick since achieving Juno Champion status in 2009 and renewal in 2012.

Principle 1: A robust organisational framework

1.1 Established organisational framework

Under the supportive leadership of three successive Heads of Department (HoDs), the Juno principles have become embedded in departmental processes and procedures. One strategic objective in the Dept.'s *2020 Vision* is "to be an aspirational place of employment". We have been spreading the good practice developed specifically for female academics through Juno for the benefit of all categories of staff; Physics has a reputation within the University of being a congenial place to work.

Juno/Athena SWAN continues to have a high profile at Warwick, at institutional and dept. level. Physics strives to maintain an inclusive culture and shares best practice with other departments both at Warwick and in other HEIs. The principal driver of change has been the Welfare and Communication Group (WCG) that emerged from the original Juno group; it meets quarterly and reports to the Staff Meeting (Action 1.1.3); membership is representative across categories and career levels of staff and postgraduates (Annex 1). Both the HoD and Senior Administrative Officer serve on WCG, ensuring top level buy-in to Juno/Athena initiatives and enabling immediate authoritative decisions (Action 1.1.1). Rotation of WCG membership helps ensure the group's activities are embedded in the department, with half having changed since 2012. Members also engage in the wider University Athena SWAN Network Group that meets monthly to network, share ideas of mutual benefit, and has considerably improved communication between departments. A report is circulated annual and published on our web pages (Action 1.1.2), along with Juno/Athena information and WCG minutes. The success of WCG is evident in that equality and diversity issues are now being regularly discussed in other departmental forums, staff are more engaged and informed, and communication has improved – 10% more staff in Physics feel well-informed than the University average (Action 1.1.2, PULSE 2015/16).

All academic administrative and committee roles have been re-defined to provide clear guidance of what each role entails (Action 1.1.1) and, where relevant, formalise commitment to equality and promoting Juno principles. Chairing WCG is recognized as a substantial element of a Senior Teaching Fellow's role.

An annual budget of £10k covers events such as 'Women in Physics' lunches, travel for national Juno/Athena activities, promoting the SPRINT personal development programme for female undergraduates, supporting attendees at the annual Conference for Undergraduate Women in Physics, and student involvement in other STEMM activities.

1.2 Monitoring and Evidence Base

WCG monitors statistical data, specifically on gender balance of student admissions and performance, job applications, appointments and promotions for all staff categories to identify trends, discuss issues relevant to Juno, and report to staff/students. Collection of quantitative data has been improved by working proactively with the University Athena Network, HR, and Strategic Planning and Analytics Office which now provides a dashboard of annual data for all departments. (Action 1.2.1) (See below for comments on the specific data.)

Further information is collected via the biennial standardised University PULSE survey that includes quantitative and textual responses disaggregated by department, staff category and gender. Physics staff responded to PULSE 15/16 with a 74% employee engagement score, gave an 85% positive response that their ‘work gives a feeling of personal achievement’, and it reflects Juno success with a 10% higher perception of equal opportunity than the University average. Responses differed little by gender, although the women felt 7% more secure in their jobs. In addition, Physics staff complete a biennial survey. In 2013 this highlighted a perceived lack of transparency of the work allocation model; it was improved and the HoD discussed it at a staff meeting. Monitoring will in future be extended to initiatives such as summer research project take-up by female undergraduates (Action 1.2.1).

Principle 2: Appointment and selection

2.1 Open and transparent processes

Appointment panels are constructed to meet equality and diversity criteria. All staff who sit on recruitment panels, and those who interview prospective PhD students, complete on-line training in both “Recruitment and Selection” and “Diversity in the Workplace” (Action 2.1.2). Shortlisting is performed against advertised objective ‘essential’ and ‘desirable’ criteria. From 2014, single gender shortlists require HoD approval. Interviews are arranged to suit candidates’ time constraints and childcare is offered at the university nursery (Action 2.2.2). Unsuccessful job interviewees receive constructive feedback.

On arrival, new staff have a face-to-face induction meeting and discuss the dept. information pack, which is now kept updated in an electronic format (Action 2.1.3). Three further meetings with their line manager follow during the probation period. For academic staff the probation period is five years, with workshops on “Role of the Personal Tutor”, “Introduction to Research at Warwick”, and “Introduction to Research Supervision”, and enrolment on the Postgraduate Certificate in Academic and Professional Practice, successful completion of which leads to HEA Fellowship. New postgraduates have an induction event in October, with talks from relevant staff followed by a social event to encourage mixing across research areas. In-year starters receive individual induction from the Director of Graduate Studies.

2.2 Encouraging under-represented groups

Staff Position	Grade	Male	Female	% F 2016	% F 2012
Clerical/Admin	FA3-8	2	13	87%	75%
Technical	Apprentice/FA4-7	13	2	13%	7%
Research/Teaching Fellow	FA6	45	7	13%	26%
Senior Research/Teaching Fellow	FA7/MCR	14	4	22%	17%
Principal Research Fellow	FA8	3	1	25%	0%
Assistant Professor	FA7	8	0	0%	38%
Associate Professor	FA8	10	2	20%	8%
Reader	FA8	13	1	7%	0%
Professor	FA9	20	4	17%	11%
Emeritus		4	1	20%	-
TOTAL		132	35	21.0%	20.7%
<i>All Teaching Staff</i>		53	13	20%	18%

Table 1: Current staffing by gender, with comparison to the 2012 Juno Champion renewal

The total complement, shown in Table 1, has increased by 46 (38%) since 2012 and the overall gender balance has remained constant, at 21% female. The proportion of female academics and researchers at more senior levels has increased, showing effective career progression.

However, the expansion of Research Fellows and Assistant Professors has been male dominated, meaning there is now a lower fraction of female physicists (13.9%) than the sector average (17.7%, HESA 2013/14). Recruitment statistics, from the past three years, show that although 20% of Research Fellow applicants were female, only 14% of the appointments were; on average success rates for women were 4.6% compared to 7.5% for men. For the five Assistant Professor posts there were 124 applicants, but only 10 were women (8%) and none were appointed (statistically not surprising with only a 4% success rate). These averaged data hide the fact that only small numbers apply for each post and, in some cases, there were no female applicants. We are obviously concerned about this under-recruitment of women and have identified possible actions to increase application numbers. While we are not aware of any bias in the appointment procedures, unconscious bias training is being rolled out to all staff from Sept. 2016 (Action 2.1.1). Working with the University's new recruitment manager, we will review advertisements to be more encouraging for all applicants (Action 2.2.1). The Dept. has, and will continue to, identify potential internal female candidates for academic positions and assist them with bridging funding and fellowship applications (Action 2.2.1).

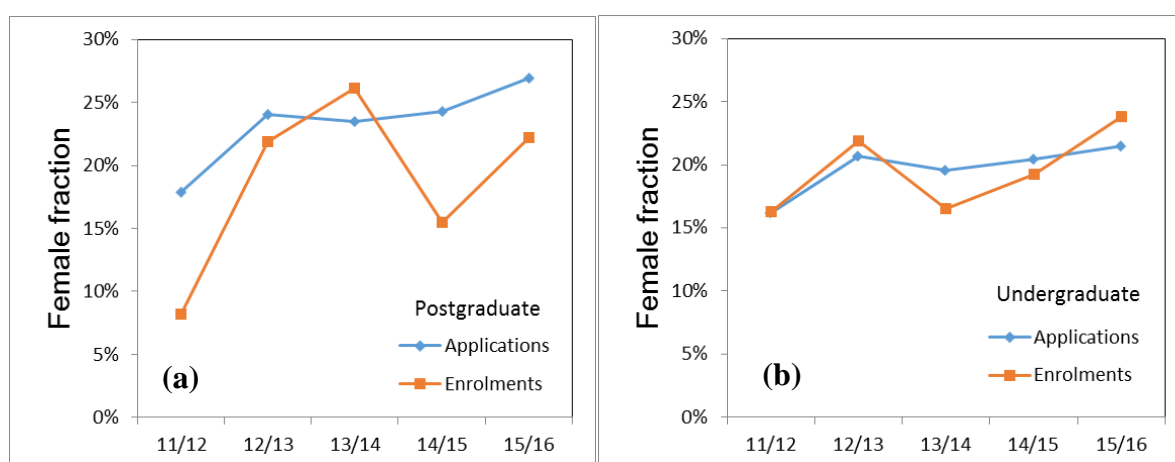


Fig. 1: Gender balance of (a) postgraduate and (b) undergraduate applications and enrolments.

Postgraduate selection is now based around cohort days, where applicants from a similar research area meet a gender balanced set of current staff and students. While female applications are consistently around 25%, Fig. 1a shows acceptances fluctuate, due to the small numbers (total intake ~30 p.a.). Our postgraduate gender balance is currently at the sector average of 21%, which shows a reassuring increase from the 15% recorded in 2012.

Undergraduate selection is primarily on achievement of A-level grades, although the Admissions Tutor also considers all applications for special circumstances and WP (Action 2.2.2). We ensure our recruitment literature shows positive images of female and male undergraduate students, information on our Juno/Athena initiatives is clearly displayed, and female staff and students are well represented at Open Days. Applicants are informed that mixed tutorial groups have at least two students of each gender. Fig. 1b shows that Physics at Warwick now has an increasing female proportion, 24% of the 2015/16 entry. The overall female undergraduate population now exceeds 20%, from 17% in 2012.

We monitor undergraduate outcomes for evidence of gender bias in degree classification (Fig. 2) (Action 2.2.5). On the BSc degree, 54% of men and 55% of women achieve a 'good honours' (1/2i) degree, with a slightly higher fraction of women getting firsts. There is a more marked difference lower in the class list, with 13% of men awarded a 3rd or below compared to only 6% of women. Similar data for the MPhys degree show 98% of men and 92% of women achieving good honours, with the difference at the small number fluctuation level and only 1 female not achieving good honours in the last three years. At the top end of the MPhys, 16% of the firsts were awarded to women, which is exactly in line with the average intake of these

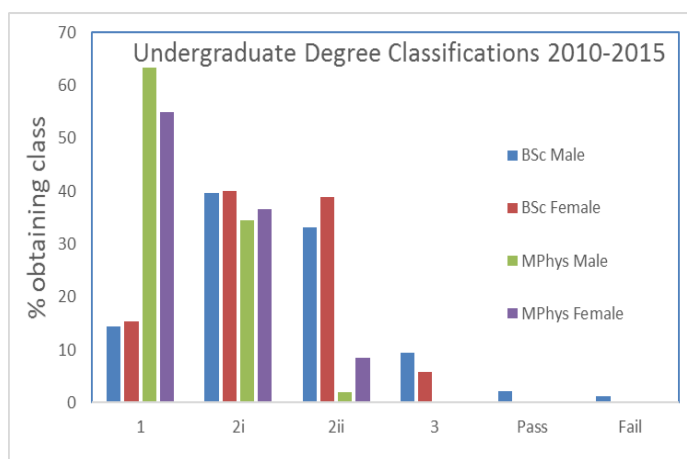


Fig. 2: Gender balance of degree classification.

cohorts. The one significant difference we have found is that more of the women complete the three-year BSc than the four-year MPhys (59% compared to 47% for men). We found 95% of women registered on MPhys pass the Year 2 threshold, compared to 60% of men. So their preferential selection of the BSc is by choice, and further investigation is required to see if, for instance, this relates to future career plans (Action 2.2.5).

We identify the major bottleneck for women in physics occurring well-before university application and consequently the Dept. has a strong focus on outreach and encouraging girls in local schools to consider studying physics to a higher level (Action 2.2.3). Physics has a Senior Teaching Fellow (female) whose full-time role is to lead on outreach, in activities such as: Primary Science Fair – 1500 local pupils enter each year; teachers, often in under-privileged schools, use this as an educational focus on science; 100 finalists have an unforgettable university experience, judged by physics postgraduates and undergraduates who act as role models (balanced gender distribution arranged). Visits into local primary and secondary schools – science demonstrations, planetarium experience, support for teachers who are often not physicists. UK co-ordinator for ESA’s pan-European competition for children to have their drawing engraved on the CHEOPS mission – largest response of any EU country. Warwick Christmas Lectures – six lectures in 2015 with topics from across the sciences, 50% female presenters, combined audience of 2,500. A group of sixth form girls taken to the XMaS beamline at the ESRF in Grenoble in 2015; the success of this trip and the surrounding science promotion in the schools unlocked RCUK funding for repetitions in 2016 and 2017, which have started with a Science Gala on campus; supported Uppsala University to shape a similar trip.

Widening participation data suggest these initiatives are starting to have a broader effect, with a year-on-year increase in physics undergraduates from low participation neighbourhoods and areas of low socioeconomic background, comfortably above OFFA targets. However, we have virtually no mature students and plan to investigate the potential for encouraging women to take up physics later in life (Action 2.2.2).

We are committed to sharing best practice within the EU PLOTINA consortium, with a work package led by Warwick focused on gender equality and academic careers (Action 2.2.3).

Principle 3: Career progression and promotion

3.1 Transparent appraisal and development

Reviews have been implemented for staff across all grades (Action Plan 3.1.1). In 2016, 100% of permanent staff engaged in the annual Development and Performance Review (DPR). This is normally conducted by the line manager, but staff can select an alternative reviewer. Fixed-term researchers also have six-monthly career reviews. The DPR acknowledges achievements, reviews and sets objectives, identifies training requirements, and discusses career progression. Job descriptions are also discussed and as a consequence one Senior Research Fellow transferred to a Senior Teaching Fellow role to more accurately reflect her duties.

Academic staff on probation have a mentor and annual review meetings with the HoD. Mentors are also made available for staff returning from maternity/paternity/adoption leave. Some

academics take advantage of a University Coaching and Mentoring scheme, open to all, with mentors outside Physics. We will make staff more aware of these opportunities (Action 3.1.2).

We encourage all staff to engage in personal development training and have set a new objective for everyone to spend five days each year (Action 3.1.1). Participants are nominated for the Warwick Leadership Programme (3 grade 8/9 staff since 2012, 1 female), the Research Team Leadership Programme (1 male SRF), and the Warwick Administrative Management Programme (5 admin staff, 4 female). The Learning and Development Centre runs activities to support PDRAs in their current work and future career development. A similar Research Student Skills Programme is for postgraduates, who have regular Physics-based progress monitoring and complete an annual report to the Graduate School. In 2014, we introduced a 'buddy' scheme for new PhD students, which will extend to all PhDs in 2016 (Action 3.1.2).

3.2 *Transparent promotion process*

Academic and research staff are annually invited to submit for promotion; the HoD further identifies and encourages potential candidates. Guidance on career progression for admin/technical staff was clarified and disseminated in 2015. The University hosts an annual 'Demystifying the Warwick Promotion' event, which the Dept. encourages relevant staff to attend and monitors how many subsequently apply for/achieve promotion (Action Plan 3.2.1).

Promotions 2011-2016	Male	Female
Senior Research/Teaching Fellow	6	2
Principal Research Fellow	3	1
Associate Professor	5	4
Reader	8	1
Professor	3	0
Pro-Vice Chancellor	0	1
TOTAL	25	9

Table 2: Academic promotions by gender in period 2010-2015. NB. Promotion to Associate Prof. occurs on completion of probation. One male and one female both completed probation and were promoted to Reader during the period.

In the past 5 years, there have been 34 promotions for Physics teaching and/or research staff. Nine promotions are for women (Action 3.2.3), which is a very high success rate given the overall population of eligible candidates. Indeed, over this five-year period 100% of female physics academics have either been promoted or are already at the professorial grade.

Non-academic staff are employed on posts that have been Hay graded. Consequently, personal promotion requires a change of post or regrading of the post to account for a change in duties or responsibilities. The Dept. supports staff through this process and proactively initiates regrading. Career development of admin and technical staff has been encouraged by offering staff opportunities to take on higher graded roles for fixed periods of, for example, maternity cover. Three female admin staff have achieved promotion by transferring to other departments within Warwick University (Action 3.1.3).

Principle 4: An open and inclusive culture

4.1 *Promote an inclusive culture*

The Dept. continues to have an open and inclusive structure (Action 4.1.1); since 2011 Staff Meetings have been open to all academic, technical, administrative and research staff, together with student representatives. These Staff Meetings have also been shortened, with a focus on informing staff and giving opportunities for opinions to be expressed, while detailed committee work takes place elsewhere. The previous Steering Group, has been replaced by a more representative Physics Management Committee, with appointment by function rather than *ad hominem* and including a junior academic on a one-year rotating membership to promote understanding of departmental decision making. Similarly, the Research Committee now has

rotating membership of fixed-term research staff and the Teaching and Learning Committee includes student representation. Meetings are scheduled in core working hours, with lunch provided for those occurring in the middle of the day.

A sense of community for all staff, and PhD students, is encouraged through refreshments every morning in our common room, creating a popular opportunity to network and socialise. An annual summer BBQ and Christmas Dinner add to the social cohesion. Throughout the year there are seminar series for research groups, postgraduates and undergraduate summer research students, and general interest departmental colloquia. As a result of monitoring gender balance, the fraction of female speakers has increased to an average of 22% (Action Plan 4.1.5).

‘Women in Physics’ lunches, introduced in 2013, are attended by a mix of postgrads, researchers, and academics; with 10-15 different women at each, a good proportion benefit overall. Topics have included an overview of the Science Gala, watching 'Becoming a Juno Champion' video, discussing The Leaky Pipeline, a speaker on International Women's Day, unconscious bias, and a photo session for the University's diversity calendar. In future, final year female MPhys undergraduates will also be invited (Action Plan 4.1.3).

In 2014 a Director of Student Experience was appointed to develop the undergraduate experience and improve inclusiveness. A weekly ‘Physics Café’, organised by PhysSoc and supported financially by the Dept, typically sees 40-60 students mix informally with staff and listen to an invited speaker on a physics-related topic (Action 4.1.3). Undergraduates are also invited in groups of ~20 to meet with the HoD and other academic staff over an informal lunch, ensuring all students have an opportunity to meet staff socially (Action 4.1.3). Communication with students has also improved with rapid circulation of responses to items raised at SSLC meetings. Members of PhysSoc contribute to Open Days, with both female and male undergraduates available to talk to visitors. Following these initiatives, the fraction of physics students ‘overall satisfied with their experience’ increased from 85% to 95% in the 2015 NSS.

Our webpages now collate information on leave, staff development and items for new starters under a ‘Working in Physics’ heading, along with staff profiles showing positive female role models and diversity within research groups. Profiles of alumni will be added (Action 4.1.4). Positive and inclusive images are used in all media and promotional material. On-line training “Diversity in the Workplace” has now been taken by all staff and postgraduates engaged in undergraduate teaching and demonstrating (Action Plan 4.1.2).

4.2 Transparent work-allocation model

The academic workload allocation model has been discussed within staff meetings and further revised to recognise a wide range of activities, with realistic hours included for each task (Action 4.2.1). Funded research commitments are accounted for, extra credit is given for preparing new lecture modules, time for general personal administration is recognised, and the ramp-up to full load during probation is more formally included. It is now regarded as more transparent than in 2012, as evidenced through the departmental policy awareness survey. Further iteration is on-going, especially around interdisciplinary teaching and outreach, and to enable smoothing from year to year (Action Plan 4.2.1).

Principle 5: Flexible working

5.1 Support and promote flexible working

The Department supports and promotes flexible working practices, requests for which are considered on an individual basis (Action 5.1.1). This particularly benefits support staff who have less flexibility in their working time. The numbers working part-time (17) and compressed hours (3) to facilitate child care arrangements has increased since 2012 (Action 5.1.3).

Since 2012, maternity leave has been taken by 9 staff, with a further 9 taking paternity leave. Staff are proactively informed that where a mother returns to work before her maternity entitlement is used her partner can take additional paternity leave; there have been two requests for extended paternity leave. Similar arrangements are available for adoption leave. The various entitlements, opportunities and procedures for all categories of staff (including RCUK supported PhDs and PDRAs) have been clearly displayed on the department's web pages and are discussed individually with expectant mothers before taking leave (Action 5.1.4). We seek permission for heavily pregnant staff and students to use car share spaces (closer to the building), we make staff aware of this early in pregnancy. On returning there are options for tapered return, flexible hours, and unpaid leave during school holidays. Particular attention is paid to equitable reassignment of duties amongst the admin team during and after periods of maternity leave. The University's Working Parents' Network (and forum) for parents of young children and expectant parents, including PhD students, is promoted by the department, and has been joined by members of Physics. A private office was made available to a PDRA, who normally sits in an open area, so that she could continue breast feeding. A senior postdoc has been appointed to cover teaching and maintain the research momentum of a Reader while she is on maternity leave; she will then have a Warwick Academic Returners Fellowship to re-establish her activities; in total covering 18 months. Funding is available for childcare so staff can attend conferences.

Academics are eligible for Study Leave for one term in seven. Requests for unpaid leave have also been accommodated; two (male) academics have taken Career Breaks (of 15 and 24 months). During extended leave, staff are encouraged to come in for a small number of paid 'Keeping In-Touch Days', with childcare provided for babies over three months at the university nursery (subject to availability).

Enable individuals to contribute to department, institution and SET

Physics staff are leading beacon activities both internal and external to the University.

As a Pro-Vice Chancellor, Prof. Pam Thomas has provided academic leadership for equality and diversity matters, support for early career researchers, and public engagement across the University; she led the major Warwick involvement with the Cheltenham Festival in 2015. She is now the most senior PVC in the organisation responsible for research across the institution, but is still seen as a full member of Physics with laboratory provision, PDRA support and opportunities to act as a role model for undergraduates.

Sandra Beaufoy, the original champion of Juno in Physics, has raised the profile of equality across the institution and is leading all of the University's Athena SWAN departmental submissions and the current institutional Silver renewal.

Ally Caldecote has played a huge role in developing Physics outreach activity (see Section 2.2) and is now extending this into effective University-wide public engagement in science, as well as encouraging/mentoring physics staff and students in outreach activity.

Summary of Future Priorities

- Improve recruitment levels of female research and academic staff
- Increase engagement with University support and training functions; promote dedicated time for staff development
- Position Physics for an Athena SWAN Gold application, through raising the UK and international profile of beacon activities
- Improve our data capture, especially of *ad hoc* and flexible working arrangements, and gender disaggregation of alumni activity

Annex1: Welfare and Communication Group

Membership

Name	Role within the Physics Department
Dr. Gary Barker	Undergraduate Admissions Tutor
Prof Geetha Balakrishnan	Teaching and Learning Committee
Dr. Gavin Bell	Academic staff
Katherine Branch	Departmental Administrator
Dr. Susan Burrows	Chair of Welfare and Communication Committee
Ally Caldecote	Outreach Officer
Prof Malcolm Cooper	Emeritus Staff - Former Head of Department
Stephanie Greis	Postgraduate Student 2013-2017
Robb Johnston	Technical Services Manager
Prof David Leadley	Head of Department
Dr. Martin Lees	Undergraduate Laboratories
Prof Andrew Levan	Widening Participation
David Wilson	Postgraduate Student 2013-2017
Dr. Michael Pounds	Director of Student Experience
Ayesha Rahman	Office Manager/HR Administrator
Prof Matthew Turner	Director of Graduate Studies
Dr. David Walker	X-ray Facility Manager
Dr. Neil Wilson	Postgraduate Admissions Tutor
Sandra Beaufoy	External Member - Human Resources: Equality and Diversity

Working in Physics: <http://www2.warwick.ac.uk/fac/sci/physics/staff/working/>