Executive Summary

The International Conferences on Women in Physics (ICWIP) are triennial conferences, held under the auspices of the International Union of Pure and Applied Physics (IUPAP), to examine the under-representation of women in physics and to develop strategies to increase their participation. Each conference brings together delegates from around the world to develop resolutions which address gender issues and promote the participation of women in physics.

The UK Team to the 2014 ICWIP conference was brought together by the Women in Physics Group, following recommendations by the IOP Diversity and Inclusion Committee, and delegates played an active role in the conference presenting in workshops and poster sessions as well as promoting the Institute of Physics and UK physics. The UK was seen to have high standing in the field and presentations on JUNO, IOP Girls into Physics work and the Aurora Leadership programme have been followed up with international interest to ensure the good practice is widely disseminated.

The conference is unusual in that women at all levels of seniority are represented and share experiences. Numerous world-wide networks have been strengthened or developed and it has been an honour for the team to contribute. Importantly, it was an outstanding opportunity to learn of new ways forward that have been developed in other countries. The 2014 ICWIP conference resolutions towards achieving gender balance in all physics activities were generated during the conference and presented to the 28th IUPAP General Assembly in Singapore. The recommendations have been put into the UK context for this report, which includes the responses from the Institute of Physics. The conference proceedings will include all the individual country papers which report the progress in each country since the previous ICWIP.

The UK bid to host the 6th ICWIP has been accepted. The 2017 conference will be hosted by the University of Birmingham and organised jointly with the Institute of Physics in close cooperation with the universities of Nottingham and Warwick.
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The UK Team

- Ann Marks, WIPG and University of Liverpool – Team Leader;
- Tracey Berry, Royal Holloway, University of London* – member of the JUNO Assessment Panel;
- Brian Fulton, University of York* – Chair of the JUNO Assessment Panel;
- Nicola Wilkin, University of Birmingham* – recent past member of the IOP Council;
- Dawn Leslie, Brunel University – recent past Chair of WIPG.

Gillian Butcher, University of Leicester - also attended the conference as a member of the International Organising Committee and was a workshop leader.

* Juno Champion Departments

The UK team was drawn together using guidelines stipulated by the Institute of Physics (IOP) Diversity and Inclusion Committee (DIC) who strongly recommended a team should be sent, led by the Women in Physics Group. Thanks are due to Jenni Dyer, of the Institute of Physics, for her support and advice throughout.

The Conference

Over 200 women physicists and some men physicists from 51 countries attended the 5th International Union of Pure and Applied Physics (IUPAP) Conference on Women in Physics (ICWIP) held at the Wilfred Laurier University in Waterloo, Canada from 5 to 8 August 2014.

All country teams were invited to submit an up-date of their national situation and both country posters and scientific posters were invited. All the abstracts were included in the Programme Book, a copy of which was presented to each delegate for reference throughout the conference.

The conference programme included poster sessions and breakout workshops in addition to the plenary sessions and invited talks by distinguished women physicists from across the world.
During the workshops, presentations about recent initiatives gave rise to discussions. Then each workshop developed recommendations for presentation and debate during the final conference plenary session with the aim of agreeing resolutions to be submitted to the IUPAP General Assembly in Singapore, in November 2014, for ratification.

The conference began with a welcome from distinguished guests who emphasised the vital need for women in physics. Throughout the conference there was a vibrant atmosphere with numerous opportunities to share experiences and practices to support women in physics and thereby build links across the world. There is a country contact list on the conference website and a delegates list may be downloaded from the website. The conference proceedings will be published by the American Institute of Physics.

**Posters**

**Country posters:** The abstracts for these posters and national team reports provide details about the developments for and experiences of women physicists in each of the participating countries. Many describe situations very different from that in the UK, although there are many common threads between countries.

**Scientific posters:** These are invited to facilitate collaborations between women researchers in their specialisms. For some delegates, presenting their work is essential to be able to attend the conference. This may also be the only conference some women are able to attend, as they are not allowed to attend the usual mixed gender conferences.

All the abstracts, including those for country papers, workshops, and posters can be downloaded as an abstract book.

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**UK contributions to the conference**

- **Workshops:**
  - Each UK team member took part in a different workshop:
    1. **Gender Studies:**
       - Tracey Berry,
    2. **Physics Education:**
       - Ann Marks presented “Closing doors: Exploring gender and subject choice in schools”,
       - Brian Fulton presented “The Juno Project of the UK Institute of Physics: Addressing Gender Issues in University Physics Departments”,
    3. **Improving the Workplace Environment – Gillian Butcher chair:**
    4. **Professional Development and Leadership:**
       - Nicola Wilkin presented “The Aurora Leadership programme”,
    5. **Cultural Perception and Bias/ Science Practice and Ethics:**
       - Dawn Leslie.
• Papers:
  o 2011-2014 UK country paper – Ann Marks, Jenni Dyer, Maisie Munroe, Gillian Butcher
    Please see Appendix B
  o From ‘Closing Doors’ to ‘Opening Doors’: Exploring Gender and Subject Choice in UK Schools - Ann Marks

• Posters:
  o UK Country Poster (Appendix C)
  o Tracey Berry – ‘Search for contact interactions and large extra dimensions in the dilepton channel using proton-proton collisions at √s = 8 TeV with the ATLAS detector’
  o Ann Marks – ‘European Platform of Women Scientists 2011-2014
  o (Jonathan Watkins and) Nicola Wilkin – ‘Extrusion of a Vortex lattice’

• After the conference:
  o The team put the recommendations into the UK context for presentation to the Institute of Physics. Their responses are included in this report.

Resolution ratified by the 28th IUPAP General Assembly,

Singapore

Resolution for the IUPAP 28th General Assembly, November 2014
Submitted by

Working Group 5
on Women in Physics

Globally, the involvement of women and girls in physics is very different across countries and is still limited in most of them. Although progress has been made, much remains to be done.

Therefore, the 28th General Assembly of IUPAP resolves to

1. Extend the work of Working Group 5, for 3 years,
2. Charge the Working Group to organize the 6th IUPAP International Conference on Women in Physics,
3. Endorse an annual International Women in Physics Day, and
4. Support and encourage Physical Societies, through their National Liaisons, to facilitate the sharing of insights and successful strategies for inclusion and advancement of women in Physics.
Applications of the Conference Recommendations to the UK Physics Community

The UK team response is directed towards the IOP, which will mean, in most cases, the Diversity and Inclusion Committee (DIC), but also International Affairs, Education, the Juno Steering Panel and the Women in Physics Group where appropriate.

<table>
<thead>
<tr>
<th>Recommendations from ICWIP 2014</th>
<th>The UK team ask the IOP to Consider:</th>
<th>IOP Responses:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. IUPAP is asked to support and encourage Physical Societies, through their National Liaisons, to facilitate the sharing of insights and successful strategies for inclusion and advancement of women in Physics. Adaptation of shared international material to local circumstances should be considered by the National Liaison members.</td>
<td>1. a. i. Whether there would be any benefit in having a centrally available training workshop which can be accessed widely by young researchers and students. ii. Whether more can be done to help make IOP resources available and adapted for other countries/cultures. iii. Whether a Juno Good Practice Guide could include a list of those departments who have such workshops (and if they are willing to share). iv. Whether publicity of existing resources could be increased.</td>
<td>1. a. i. The IOP Careers Team is currently developing a central workshop aimed at early career researchers to help them with grant applications, bids for funding etc. This will be run in September for the first time and, if successful, we will run a female-only one at a later date. The IOP will explore whether it will be possible for the workshop material to be widely accessible and downloadable. ii. We have a new International Strategy and as this is rolled out, we will consider how we can adapt our resources internationally, if appropriate. All resources on the IOP open access website may be downloaded freely by all. a. iv – b. ii. We have recently established our Juno Champions' and Practitioners' networks and will invite departments to share this information and publicity via these mechanisms.</td>
</tr>
<tr>
<td>a. The National Liaison Committees should encourage Physical Societies to organize Workshops on Professional Development for Women in Physics at all educational and career stages. A training workshop specifically on publication culture for young researchers and students is advisable.</td>
<td>2. i. Facilitating the use of Juno Good Practice Guides to bring together good practice that could be shared. ii. Bringing people together to discuss issues.</td>
<td></td>
</tr>
<tr>
<td>b. The IUPAP Working Group on Women in Physics is tasked to promote the sharing of workshop material between countries.</td>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>2. We reiterate our stand regarding the need to promote gender equity at all levels in physics practice. In order to have a set of guidelines in this regard, we ask IUPAP to mandate the Working Group on Women in Physics to craft out a “Waterloo Charter” based on the Baltimore Charter and the Pasadena Recommendations formulated by the American Astronomical Society in 1993 and 2003, respectively, for the IUPAP to uphold in the future. It would be advisable that this Charter be also shaped and guided by the principles dictated by the JUNO</td>
<td>2. i. providing assistance to the IUPAP Working Group, if required, with the interpretation of the Juno principles. ii. how to assist other countries setting up their own Juno type programme iii. how a Juno framework/ process might be interpreted and applied at a country level.</td>
<td>2. The IOP International Team will work with the IUPAP Working Group to enable dissemination of the Juno principles and frameworks to other countries, if required.</td>
</tr>
</tbody>
</table>
3. There is a need to continue to conduct regular updates of the Global Survey of Physicists presented in 2011 in Stellenbosch.
   a. We ask IUPAP to take the necessary steps to continue the Global Survey of Physicists periodically, ideally every 5 years.
   b. The continued survey should use the same questions and translations as the first Survey.

3.a. how any future IUPAP global survey might fit with other surveys it runs or has access to and how best to use the data, including making meaningful comparisons with other countries.

b. promoting the survey and contributing funding.

3 a-b Making data meaningful across countries is extremely complex and specific funding would have to be sought to enable this to happen. It is unlikely that the IOP International Team would have sufficient funds to conduct a survey such as this, although will participate in promoting any such survey as appropriate.

4. We charge the IUPAP Working Group on Women in Physics with further analysis of country data presented at ICWIP2014 from the 2010 Global Survey, including
   a. evidence-based implementation of policy within countries,
   b. Seeking of consistent data according to guidelines,
   c. Inclusion of some qualitative analysis where quantitative data not available.
   d. This analysis should be included in WG report and distributed via the IUPAP website.

4. how it may use the global data from the 2010 survey and to request the UK specific data.

4. Data is available from many sources in the UK and we have access to survey information from, e.g. ASSET, and through our Juno departments. We will request the UK specific data, if it is thought to be meaningful and reliable.

5. We recommend that IUPAP endorse an annual International Women in Physics Day.
   a. The recommended date is November 7th, in commemoration of the birthday of Marie Curie and of Lise Meitner and of the announcement of the first Nobel Prize in Physics awarded to a woman.
   b. A campaign is recommended on this day to reduce conscious and unconscious bias and its consequences. Improvement of the Public perception of physicists, with special reference to gender, would be included in the campaign.
   c. We recommend that awareness of subtle gender bias should be incorporated into the

5. a. 

   b. WIPG and the IOP to consider how best to promote and celebrate the International Women in Physics Day.

   c. IOP to investigate whether the training of UK physics teachers does include awareness of gender bias and its effectiveness.

5.b. The Elizabeth Johnson Memorial Lecture, which is run biennially, has been incorporated in the public engagement lecture series and will run within the context of this series. DIC is asked to consider how the IOP may initiate an annual diversity event to celebrate International Women in Physics Day.

DIC agreed there should be a celebration of an International Women’s Day and invited WIPG input. WIPG welcomes this recommendation and discussions are ongoing.

C. The IOP Diversity Team is already working with the ITE Team in the Education department on a project to look
| 6. | Recognizing that Physics Education Research has just begun to take effect for girls in physics, we request IUPAP to recommend that the outreach activities required for IUPAP-funded conferences include:  
   a. a content-based physics learning session for school teachers, and  
   b. an event for girls under 16. | 6. | The IOP to consider adopting such requirements for IOP funded conferences. | 6. | The IOP already undertakes a significant amount of work and CPD for teachers of physics through the Stimulating Physics Network, the Capital Physics Project, the Affiliated Schools programme and other initiatives within the Education department. The IOP also already undertakes a significant amount of outreach into schools aimed at girls and details of all our Girls in Physics work can be found from the IOP Education Department. |

7. Given the success with which the IUPAP International Conferences on Women in Physics have met as a means of providing a forum for both men and women to exchange best practice on involving women in IUPAP and in physics in general, we charge the Working Group to organize the 6th IUPAP International Conference on Women in Physics. |  (This is an action on the IUPAP working group only.)|

The UK ICWIP teams thanks the Institute of Physics.

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**UK Outcomes - summary**

The UK bid has been accepted to host the 2017 ICWIP at the University of Birmingham, jointly organised with the Institute of Physics and a number of other UK universities and partners.

A new annual event called ‘Women in Physics Day’ will be celebrated.

**JUNO:** JUNO raised a lot of interest and, in the resolutions to the IUPAP, the Working Group on Women in Physics is mandated to craft out a “Waterloo Charter” based on the Baltimore Charter and the Pasadena. The IOP International Team is happy to work with the IUPAP Working Group to enable dissemination of the Juno principles.

It was confirmed that all resources on the IOP main website may be downloaded freely by all, world-wide.

**Gillian Butcher** has been elected as the Vice-Chair of the IUPAP Working Group on Women in Physics.
Snippets:

- From our male team member – ‘I was rarely conscious that I was in a female dominated environment, apart from the one time when someone asked me if I felt out of place’.
- Few countries have a well-resourced and centrally organised initiative like Juno, or indeed physics organisations/societies who could provide the necessary leadership.
- Our figure of 20% female participation at undergraduate level is not dissimilar to many countries, although there are wide variations and some that have achieved parity.
- Women only conferences are important since in some societies, husbands will not let their wife attend a conference if there are men present.
- When a country has a female leader, it can have a transformative impact on the gender agenda.
- From Ireland - a recent survey on Attracting Young Women into Science and Technology (Accenture 2014) provides insight into the perceptions of schoolgirls, their parents, teachers, careers advisors etc.
- FOM the national funding agency of The Netherlands has funded a scheme to appoint 88 new tenure track positions in universities with a target for 40% of these to be women.
- A suggestion for a future IOP study on career impact when married couples are both physicists.
- The IOP should be encouraged to share its unconscious bias training, as it is clearly much appreciated.

Appendix A

Invited Plenary Speakers

- Public lecture by Jill Tarter of the SETI Institute: "SETI: Past, Present, and Future (Finding Aliens and Finding Ourselves)". Her work inspired the novel and film Contact.
- Melissa Franklin, Mallinckrodt Professor and Chair of Physics, Harvard University, “Constructing a Lab of One’s Own”. She was part of the team that discovered the Higgs boson and is the first woman to receive tenure in Harvard University’s Physics department.
- Silvia Torres-Peimbert, Professor Emeritus, Institute of Astronomy, Mexico City University and President Elect of the Executive Committee, International Astronomical Union, “Chemical Composition of Planetary Nebulae. The Abundance Discrepancy Problem”.
- Claudia Felser, Professor, Johannes Gutenberg University Mainz, Director, Max Planck Institute for Chemical Physics of Solids, Dresden, “New Developments in the Area of Topological Insulators”.
- Sabine Stanley, Associate Professor and Canada Research Chair in Planetary Physics, University of Toronto, “Planetary Magnetism: Unlocking the Secrets of Planetary Interiors”.
- Patience Mthunzi, Senior Scientist Researcher, National Laser Centre - Biophotonics, Council for Scientific and Industrial Research, South Africa, “Live Cells Including HIV-1 Infected and Embryonic Stem Cells Non-Invasively Macro-Manipulation via Laser Light”. She was the first person in South Africa to qualify for a PhD in her area of biophotonics.
- Tsai-Chien Chiang, Science columnist, lecturer at Taiwan University and author of "Madam Wu Chien-Shiung: The First Lady of Physics Research", the biography of the famous experimental physicist Wu Chien-Shiung.
- Ursula Franklin, Canadian physicist and campaigner, gave a talk and signed her book “Ursula Franklin Speaks: Thoughts and Afterthoughts”.

ICWIP Outreach Activities

- The Perimeter Institute arranged demonstrations of outreach activities throughout the conference.
- My STEM Story: Delegates shared their stories to make up My STEM Story.
- The video, ‘HerStories: Wisdom and Encouragement from Women in Physics’, was produced from interviews with delegates, to inspire women who are considering a career in physics.
Conference Workshops

Workshop 1: Gender Studies
Chair: Lilia Meza-Montes – Mexico
Speakers:
- Eden Hennessey, Canada: Equity and Education: examining gendered stigma in science,
- Anitha Kurup, India: Comparative Study of Women Scientists and Engineers in India and US
- L. Meza-Montes, India: Towards Gender Equity through Policy- Characterising the Social Impact;
- P. Shastri, India: Interventions towards Gender Equity in Physics - seeding or hindering cultural change?

Workshop 2: Physics Education
Chaired by: Renee Horton, USA; Marina Milner-Bolotin, Canada; Ching Ray, China
Speakers:
- Ann Marks, UK: Closing doors: Exploring gender and subject choice in schools;
- Fu-Jen Kao, Taiwan: How to interact with male colleagues, a male point of view;
- Monika Raharti, Indonesia: Nurturing Asia-Pacific female scientists through scientific events;
- Chandralekha Singh, USA: Assessing gender differences in students’ understanding of magnetism;
- Eilish Mcloughlin, Eire: Teaching, learning and assessing inquiry based science education;
- Marina Milner-Bolotin, Canada: Helping physics teacher-candidates develop questioning skills through innovative technology use.

Workshop 3: Improving the Workplace Environment
Chairs: Igle Gledhill, South Africa; Gillian Butcher, UK
Speakers:
- Melanie Campbell, Canada: Improving workplace environment improves it for everyone
- Brain Fulton, UK: The Juno Project of the UK IOP: addressing gender issues in university physics departments
- Akira Ejiri, Japan: Analysis of office/laboratory staying hour and home working of Japanese scientists and engineers
- Anne Cox, USA: Combating isolation; building mutual mentoring alliances
- Seema Ubale, India: A study of status of women in physics in Nagpur, India
- Igle Gledhill, SA: Attractiveness of the physics environment for women

Workshop 4: Professional Development and Leadership
Chairs: Manling Sui, China; Xia Guo, Japan; Jin-Hee Yoon, Korea:
Speakers:
- Kae Nemoto, Japan: Continued engagement in promotion in physics;
- Youngah Park, Korea: The national status of gender issues in Korea and introducing gender summit:
- Beth A. Cunningham, USA: Can Physics disciplinary societies make a difference in the success of women in physics?
- Cathy Foley, Australia: Can you have it all? Making it work for you;
- Shao-ping Zhu, China: Inspiration form the analects of Confucius
- Susan K. Blessing, USA: Conferences for undergraduate women in physics;
- Lister Mulindwa Kaziya, Zambia: Building bridges for women’s participation in physics.

Workshop 5: Cultural Perception and Bias/ Science Practice and Ethics
Chairs: Kwek Leong Chuan, Singapore; Silvina Ponce Dawson, Argentina
Cultural Perception and Bias - Speaker:
Casey Tesfaye, (AIP), USA: the results of the International Survey of Physicists analysed by region;
Round Table: with JG Lin, Taiwan, and V. Pierron-Bohnes, France
Science Practice and Ethics - Speaker: Silva Ponce-Dawson, Argentina.
Appendix B

UK Country paper submitted for the conference proceedings of the 2014 ICWIP Canada

Women in Physics in the UK: Update 2011-2014

Ann Marks¹, Jenni Dyer², Maisie Monroe², Gillian Butcher³

¹ UK team leader, Women in Physics Group, Institute of Physics, UK; ² Diversity, Institute of Physics, UK; ³ Department of Physics and Astronomy, University of Leicester, Leicester, UK.

THE INSTITUTE OF PHYSICS

The Institute of Physics (IOP) is the UK’s national physical society [1] supporting those interested in and studying physics at all levels from schools and universities, through to career physicists and policy makers. The work of the IOP’s Diversity Programme [2] and the Women in Physics Group (WIPG) [3] is recognised as being at the forefront of progress for women in science in the UK.

The IOP currently has two main strands of work to promote women in physics in the UK: Girls in Physics and Project Juno. In England, the proportion of girls out of those taking physics beyond the age of 16 has fallen from about 23% to 21% over the last 30 years or so, during which period there has been a very large number of initiatives to increase that ratio; indeed, the only one shown to work has been to improve the quality of physics teaching [4]. Seeking a new direction on this issue, the Institute of Physics recently published two influential reports: It’s Different for Girls in 2012 [4] and Closing Doors in 2013 [4]. The first report showed that whether a girl chooses to pursue her study of physics beyond the age of 16 is heavily influenced by the type of school she attends. Building on that observation, the second report looked at progression in six gendered subjects, three favoured by boys, including physics and mathematics, and three by girls, including English and biology. The results showed that, in order to have a better ratio for girls in physics, it was necessary to address gender stereotyping across the whole school.

In parallel with this work, there have been two longitudinal research studies, Aspires [5] and UPMAP [6] that have provided robust evidence on the factors affecting subject choice for both boys and girls. The outputs are rich but one important message is that they indicate that traditional, outreach-based interventions and one-off visits by scientists to schools etc. are highly unlikely to make a difference to subject choices.

As a result of this evidence, the Institute has been granted substantial government and charity funding to set up a series of projects, broadly along three themes. The first is to increase the confidence of girls in their ability to do physics so they are empowered to overcome barriers, many within the school, preventing them from doing physics. The second theme is to work with teachers to improve their classroom management to be more inclusive. The final theme is very ambitious; it is to address gender stereotyping across the whole school, working with head teachers and staff towards targets for a gender balance in all subjects. These are difficult projects but the easier alternatives have been tried and have had little effect.

In addition, the Institute is working with the Government Equalities Office on a pilot scheme, Opening Doors, which aims to work with two networks of partner schools to create a code of practice on gender equity issues, which will then be rolled out across the country. Jenny Willott MP [7], who launched the pilot scheme in June 2014, has written “In order to maximise creativity, innovation and competitiveness more women need to be attracted to working in physics and engineering. In the UK the Coalition Government’s Opening Doors project is supporting girls to get into science-based careers by today’s generation of female scientists and engineers going into schools and inspiring other young women to follow in their footsteps. This is helping to ensure that the UK doesn’t miss out on talent, and skills shortages are filled.”

The second strand of IOP work to promote women in physics in the UK is Project JUNO [2], an award scheme that recognises and rewards higher education physics departments that are working to address the under-representation of women at all levels of physics academia. The IOP Diversity Team works closely with departments to support them in understanding their own issues, providing data for national comparison, running workshops, and providing bespoke advice.

There are three levels of engagement with Project Juno: Supporter, Practitioner and Champion. As a Supporter, physics departments endorse the five principles set out in the Code of Practice. Practitioner status requires the department to demonstrate that its Juno journey is well underway and an initial evidence-based action plan indicating how the department aims to achieve Champion status is developed. As a Champion, a physics department is confirmed
to have embedded the five principles throughout. There are currently 10 Champion, 11 Practitioner and 25 Supporter departments across the UK and Ireland: 75% of the total number of physics departments.

An independent evaluation of Project Juno conducted in 2013 after Juno’s first five years, [2] revealed the tangible improvements in workplace culture in many Juno departments, including increased awareness of staff and senior management in women in STEM issues, discussion on gender issues within the department and visibility of female staff. Surveys of staff in Juno and non-Juno departments found that those in Champion departments rated departmental practices (such as appraisals, promotions and flexible working) more highly than respondents from Juno Supporter departments and non-Juno departments.

Over the past six years, the percentages of female physics staff in the UK have risen: the proportion of professors who were female rose from 5% to 9% (19 to 52 women), senior lecturers/lecturers who were female rose from 14.8% to 19% and researchers who were female rose from 17% to 19% of the total staff at that level.

WIPG [3] continues to support its members, awarding the annual Very Early Career Women Physicist of the Year, holding careers events for students and supplying role models for outreach events. Additionally, following a membership survey in association with WIPG, the IOP has established a Carers’ Fund [2] to assist carers to attend conferences. This is available for any type of caring, whether childcare, elderly or disabled relatives or friends.

NATIONAL GENDER INITIATIVES IN SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS (STEM)

Numerous initiatives to increase the participation of women in STEM (which includes women in physics) have continued to develop across the UK. Examples include:

- the Royal Society’s ‘Leading the way’ project which aims to remove barriers to entry, retention and progression of under-represented groups, including women, within the scientific workforce. They held their second Diversity Day in June 2014.
- the Diversity Forum of the Science and Technology Facilities Council, a major national funding body, has a ‘Leadership for women’ programme and are exploring unconscious bias during the interview process.

The Athena SWAN award scheme [8] recognises all STEM departments in their efforts to address the under-representation of women in higher education. Recently, there has been a marked increase in gender activities within academic science, particularly in medical departments, since their funding council linked grant awards to attaining a silver Athena SWAN award. Both Juno and Athena SWAN were highly commended in a 2014 Government report on women in scientific careers. The report also reflected that despite issues having been long identified and multiple initiatives been undertaken, that little had changed and much was still to be done. The Government response [9] includes national campaigns [10] to bring the different partners, including business and industry, together to make a real difference, to pledge new concrete actions and continue existing actions. With benchmark data in place the government will monitor trends and consider further action if “significant progress” is not made in 3 years.

References

7. Jenny Willott is the MP for Cardiff Central and was Minister for Employment Relations and Consumer Affairs in the Department for Business, Innovation and Skills from December 2013 until June 2014 covering Jo Swinson’s maternity leave. Jo Swinson has now returned.
Appendix C  UK Country Poster

Women in Physics in the UK: update 2011-2014


* University of Liverpool, UK,  
* Diversity Programme, Institute of Physics, UK,  
* University of Leicester, UK

In the UK the Coalition Government’s Opening Doors project is supporting girls to get into science-based careers by today’s generation of female scientists and engineers going into schools and inspiring other young women to follow in their footsteps."

Jenny Wilott, Minister for Employment Relations and Consumer Affairs in the Department for Business, Innovation and Skills

Scientific Societies Women Presidents
Prof. Leslie Yellowlees, Prof. Dame Nancy Rothwell and Dr Frances Saunders: Presidents of the Royal Society of Chemistry, Society of Biology and Institute of Physics

IOP Institute of Physics

Diversity Programme

• Girls in Physics
  • It’s Different For Girls - the type of school a girl attends strongly influences whether she chooses to study physics.
  • Closing Doors - to improve the ratio of girls taking physics requires gender stereotyping to be addressed across all school subjects.
  • Opening Doors – government funded pilot scheme with a whole-school approach to addressing culture.

• Project Juno
  • Academic physics departments working to address the under-representation of women at all levels. 75% of UK physics departments are signed up.

Institute of Physics Women in Physics Group

• Networking events to share best practice
• Very Early Career Woman Physicist of the Year Award
• Student career events
• Member of the European Platform of Women Scientists

Funding Linked to Diversity

In July 2011 the Chief Medical Officer, Prof. Dame Sally Davies, demanded that academic medical departments demonstrate they are actively engaged in improving gender equality, making it a condition to obtain future funding.

Whilst this is controversial, it has created an unprecedented increase in activity in Athena SWAN and is provoking debate within other national funding bodies whether they should follow suit.

Contact for further information: ann.marks@liverpool.ac.uk

Athena SWAN

A national HE award scheme covering all science subjects and requiring institution level engagement.

It is closely allied with the IOP Juno support and accreditation for physics departments.

The Department of Physics at the University of Cambridge has the top Athena SWAN gold award.

Royal Holloway, University of London, Women in Physics meeting and logo

Scientific Societies Women Presidents
Prof. Leslie Yellowlees, Prof. Dame Nancy Rothwell and Dr Frances Saunders: Presidents of the Royal Society of Chemistry, Society of Biology and Institute of Physics

IOP Past President Prof. Sir Peter Knight presents the Juno Champion award to Tracey Berry of Royal Holloway, University of London

Contact for further information: ann.marks@liverpool.ac.uk

IOP  Past President Prof. Sir Peter Knight presents the Juno Champion award to Tracey Berry of Royal Holloway, University of London

Royal Holloway, University of London, Women in Physics meeting and logo

Women In Physics

Institute of Physics

Women in Physics Group

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• Student career events
• Member of the European Platform of Women Scientists

Proportion of UK physics graduates that is female by level of study

1st degree Masters Doctorate

Proportion of staff that is female in UK physics departments at each grade

senior lecturer/lectures

professor

researcher

0 5 10 15 20 25 30 35 40

f (%)


In the UK the Coalition Government’s Opening Doors project is supporting girls to get into science-based careers by today’s generation of female scientists and engineers going into schools and inspiring other young women to follow in their footsteps."

Jenny Wilott, Minister for Employment Relations and Consumer Affairs in the Department for Business, Innovation and Skills

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  • Academic physics departments working to address the under-representation of women at all levels. 75% of UK physics departments are signed up.

Institute of Physics

Women in Physics Group

• Networking events to share best practice
• Very Early Career Woman Physicist of the Year Award
• Student career events
• Member of the European Platform of Women Scientists

Funding Linked to Diversity

In July 2011 the Chief Medical Officer, Prof. Dame Sally Davies, demanded that academic medical departments demonstrate they are actively engaged in improving gender equality, making it a condition to obtain future funding.

Whilst this is controversial, it has created an unprecedented increase in activity in Athena SWAN and is provoking debate within other national funding bodies whether they should follow suit.

Contact for further information: ann.marks@liverpool.ac.uk

Athena SWAN

A national HE award scheme covering all science subjects and requiring institution level engagement.

It is closely allied with the IOP Juno support and accreditation for physics departments.

The Department of Physics at the University of Cambridge has the top Athena SWAN gold award.

Royal Holloway, University of London, Women in Physics meeting and logo

Scientific Societies Women Presidents
Prof. Leslie Yellowlees, Prof. Dame Nancy Rothwell and Dr Frances Saunders: Presidents of the Royal Society of Chemistry, Society of Biology and Institute of Physics

IOP Past President Prof. Sir Peter Knight presents the Juno Champion award to Tracey Berry of Royal Holloway, University of London

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Appendix D

Website Links:

Conference Country Contacts list - http://wgwip.df.uba.ar/country-contact.html

From workshops:

Inquiry Based Science Education units - http://www.establish-fp7.eu
SAILS Project - http://www.sails-project.eu/portal/
'It's different for Girls’ and ‘Closing Doors’
STEM away week Colorado - http://www.aacu.org/pkal/events/sli/
The Global Survey of Physicists is on the AIP website - www.aip.org/statistics
Attracting Young Women into Science and Technology (Accenture 2014) -

Conference Outreach:

The Perimeter Institute (Waterloo, Canada) outreach - http://www.perimeterinstitute.ca/outreach
My STEM Story - http://mystemstory.wlu.ca/
‘HerStories: Wisdom and Encouragement from Women in Physics’ -
https://www.youtube.com/watch?v=ofE-mJFJR5w&feature=youtu.be

Previous ICWIP Conferences:

2002 – Paris, France
  Website: http://www.if.ufrgs.br/iupap/index-conference-2002.html
  Proceedings: http://scitation.aip.org/content/aip/proceeding/aipcp/628

2005 – Rio de Janeiro, Brazil
  Website: website: http://www.cbpf.br/~women-physics/
  Proceedings: http://scitation.aip.org/content/aip/proceeding/aipcp/795
  Ann Marks’ plenary talk http://scitation.aip.org/content/aip/proceeding/aipcp/10.1063/1.2128269

2008 – Seoul, South Korea
  Website: http://wgwip.df.uba.ar/third_conference/
  Proceedings: http://scitation.aip.org/content/aip/proceeding/aipcp/1119

2011 – Stellenbosch, South Africa
  Website: http://www.acitravel.co.za/event/index.php?eventID=20
  Proceedings: http://scitation.aip.org/content/aip/proceeding/aipcp/1517/