REPORT FOR THE VII EPS FORUM PHYSICS AND SOCIETY
27 October 2016, London, United Kingdom
« Getting the diversity balance right in physics”

Chair: Averil Macdonald

The VII Forum Physics and Society: Getting the diversity balance right in physics was hosted by the Institute of Physics, UK on 27 October 2016. The aim of the conference was to find out more about how different diversity in physics was across Europe, how to improve diversity in business and retain a diverse workforce, encourage under-represented groups to study physics and continue in their careers, and discuss other initiatives that could increase diversity in physics.

Professor Paul Hardaker, the Institute’s Chief Executive opened the conference. The IOP had had an ambitious diversity and inclusion programme, with a heavy emphasis on girls and women in physics, for more than a decade. He was personally committed to this, and proud of the work to improve the gender balance in physics and in retaining women in physics careers. He welcomed discussions at the European level to tackle a systemic problem which was not unique to the UK. The IOP was continually striving to learn whether there was more that it could do to move the diversity agenda forward.

Professor Lucia Di Ciaccio, gave the overall picture of diversity of physics in Europe. She presented data from the SHE survey, which investigates the level of progress made towards gender equality in research & innovation (R&I) in Europe. Europe needs excellent science and innovation to tackle the grand challenges, irrespective of age and gender. Among the conclusions, the gender pay gap in scientific research & development was almost 20% (in favour of men) especially as they got older and female presence was particularly low where overall level of R&D was highest.

There are several countries such as Portugal, Italy, Spain and Ireland, where there are much higher proportions of women with a doctorate in physics than other and in some it can be as high as 45%. Although neither Germany nor Sweden have such high proportions, they have shown the fastest improvement in recent years. She also reported that a survey of research-performing organisations in Europe looked at what proportion of them had adopted gender equality plans and measures. This varied widely in different countries, from as little as 10% to more than 80% but those that had adopted gender equality plans also had the highest proportion of female PhD students.

Dr Arti Agrawal gave an overview of diversity in STEM subjects in the US and the approaches being taken there to achieve a better gender balance, diversity and inclusion. There were still very stereotyped professions in the US, as with other countries, with the largest profession in terms of females being nursing, then medicine, teaching and so on. Engineering and physics were amongst those with the least numbers of females. The pattern in the US is similar to elsewhere in that more men go into leadership positions whether in academia or industry. She mentioned several top-down initiatives from government in the US, including a grant of $3m over five years that was available to develop, implement and study innovative change strategies to foster gender equality.

Dr Sarah Greasley, distinguished engineer and technical director at IBM UK, spoke about the business imperative of diversity and how it underpins IBM’s programmes and recruitment and retention policies. There was a clear business case for gender diversity in IBM, which has enabled a strong female representation at all levels partly with role models and partly because of the long-term focus on diversity. The IBM gender diversity scorecard does very well on female apprentices and they aim for 50:50 gender balance, but they lose women through working life cycle.

Professor Averil Macdonald presented her innovative outreach work to encourage more girls in schools to consider physics and science more generally. She said that in the UK the proportion of physics A-level students, physics undergraduates, postdocs and lecturers who are women had all stayed stubbornly at around 20% for the last 35 years, while for more senior positions the figure decreased. She became involved in a Women in Science and Engineering (WISE) study, “Not for people like me”. Among its findings were science outreach as a whole often uses verbs to describe being a scientist (such as what scientists DO) rather than using adjectives (such as what scientists are LIKE).

Professor Valerie Gibson chair of the Juno Assessment Panel talked about the IOP’s Project Juno and the value it brought to physics departments nationally, as well as the work they had undertaken at Cambridge to improve equality. Project Juno was established by the Institute in 2007 in response to best practice identified from the
Institute's Women in University Physics Departments: a site visit scheme, which ran from 2003 to 2005. The aim of Juno is to recognise and reward departments that can demonstrate they have taken action to address the under-representation of women in university physics and to encourage better practice for both women and men. There are five principles – Organisation, appointment, promotion and progression, culture change, flexible working – covering all aspects of academic life.

V. Gibson also presented the work they had done at the Cavendish which resulted them in being the first physics department in the UK to achieve Athena SWAN Gold, the highest level of an award scheme run by the UK Equality Challenge Unit to improve gender equality in HE.

Karen Davies spoke about the importance of informal learning in engaging young people with physics. While 458,000 children from booked educational groups visited the Science Museum last year, the yet still do not attract all sections of society. They are working with BP and King’s College London on research into science capital – the amount of science-related knowledge, attitudes, skills and experiences that young people have, which is affected by their school, home, everyday life and out-of-school activities – such as visits to places like the museum. Their research has found that 5% of young people have high, 58% have medium and 27% have low science capital. It is only those with at least medium but generally high science capital that then go on to study science subjects and have careers in them.

During the day delegates had many opportunities to discuss the presentations and initiatives around the world on diversity and science. Issues from primary school, gender stereotypes, early experiences all the way through to workforce activities were discussed. One of the biggest issues is not about engaging women but engaging people in the issues.

There were many different approaches to diversity across Europe but consensus that more had to be done to improve the gender balance in physics. A number of possibilities were discussed to make further progress. These were:

The EPS should:
Run a survey to understand the diversity of its members and the community
Monitor the gender of speakers at conferences and events
Have more industrial representation
Clearly articulate the business case for diversity so that businesses and R&D organisations understand this has to be mission critical and part of the strategy
Consider an initiative like Project Juno on an EU scale
Ensure equality and gender training and unconscious bias training is mandatory and integral at all levels
Run a diversity session at all its conferences – not as a parallel but main session
Facilitate best practice across Europe by finding out where the best practice in member societies is and bringing it together in one place.
Set its own example so that there are visible women at the top and have mandatory E&D training
Monitor the American grant scheme and how it works
Consider implementing an EPS Careers’ Fund.