UK Women in Physics: Update 2002-2005

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Since 2002, awareness of the shortage of women in SET has grown significantly and Government has stepped in to try to rectify the situation. Increasing the numbers of women is seen as vital to bolster the scientific workforce and increase the number of science graduates. Both the government and the professional bodies have put initiatives in place; we await their impact.

1. National focus

In 2002 the momentum of change for UK women in SET increased considerably. The Roberts Report \textit{SET for Success} (April 2002)\textsuperscript{1} predicted a shortage of SET graduates in the future. This deficit is especially acute in physics where the number of undergraduates remains static despite rapid expansion in other subjects; retaining women was seen as one way to plug this gap. Then \textit{SET FAIR: A Report on Women in SET} (November 2002)\textsuperscript{2} by Baroness Susan Greenfield identified the barriers for women in SET, especially senior women. A response followed in the Government’s \textit{Strategy for Women in SET} (2003)\textsuperscript{3} from the Department of Trade and Industry. Also, the Roberts Review (2003)\textsuperscript{4} drew attention to issues for women in research. These reports made recommendations to increase participation by women in SET, which included a national resource centre, schemes for returners from career breaks, mentoring programmes and the provision of flexible fellowships for mid-career researchers.

In response, the UK Resource Centre (UKRC)\textsuperscript{5} for Women in SET was set up in 2004 and funded for 3 years to promote women in a range of traditionally male career sectors from academic science and industry to construction. The UKRC has set up a special Open University course for career-break returners, starting in October 2005 that will be free for the first two years. The national mentoring network – MentorSET\textsuperscript{6} – that was initially funded by the Government is now funded by the UKRC for another two years and other mentoring schemes are developing. Funds have also been set aside for travel grants and to support schemes in Higher Education Institutions to retain women SET undergraduates.

Scientific professional bodies have implemented a range of initiatives to attract and retain female scientists. New fellowships shore up the career path for researchers, including those returning from career breaks, and the Wellcome Trust has introduced new 2-4 year career re-entry fellowships. The Royal Society has also just started relocation fellowships, designed to secure “trailing spouses”. The Particle Physics and Astronomy Research Council (PPARC) started a Women in Physics Focus Group in December 2002, has begun making all fellowships and studentships available on a part-time basis and is valuing science outreach more highly. Women in SET groups have also been set up at establishments run by the Council for the Central Laboratory of the Research Councils.

In parallel, Government has pledged to increase state maternity benefits, introduced flexible gender-neutral employment practices, increased after-school care schemes and facilitated tax-subsidised vouchers for childcare. In academia, however, \textit{The Unequal Academy} (2004)\textsuperscript{7} study, commissioned by the Association of University Teachers, finds that gender inequality is still rife (the situation in industry is harder to discern). Statistics from 2002-3 show that, across all academics, women are paid 15\% less than equivalent male colleagues, a substantial gender pay gap. Female staff were found to be 1.6 times less likely than men to be counted as research active in the Government’s Research Assessment Exercise (RAE), and also less likely to be given discretionary pay awards. Also, there are proportionately more women than men on fixed-term contracts. The postdoctoral phase is particularly problematic for women if they take career breaks and high mobility is often required at this time. With almost the lowest proportion of female academic staff (12.6\%), these problems are endemic in physics.
2. Institute of Physics UK\textsuperscript{3} (IoP)

The IoP has been laudably proactive in helping women in physics in the UK. Immediately following the 2002 Paris IUPAP meeting, career break grants were introduced for conferences which include travel and childcare as well as the reduction of membership fees for people on career breaks (to maintain Chartered status). A working party made recommendations to its Council and its first female CEO was appointed. Following the working party report, a new full time post was created to oversee gender issues and the Women in Physics Policy Committee, was set up (recently evolved into the Diversity Committee). This initiated an internal audit of the status of women within the IoP. Fact sheets for IoP Committees encouraged participation by women members and the working party recommendations were addressed systematically.

The 3Rs (Recruitment, Retention, Returning) debate, held in September 2003 with other interested parties, highlighted the scarcity of women in SET. An influential report\textsuperscript{4} was written and a Career Break survey\textsuperscript{5} of IoP members was undertaken and published in 2004. Consequently the IoP Careers website\textsuperscript{6} now has advice, and role models. Encouraging girls to consider physics at school is viewed as particularly important, so the IoP launched a Girls into Physics initiative (£0.5M) that resulted in a report (Yes She Can!) examining best practice.

Another IoP report – A Survey of Academic Appointments in Physics 1999-2004\textsuperscript{10} (Feb 2005) found that female physicists comprise 9% of research and teaching staff and are more often in lower grades (15% of researchers dropping to 4% of professors) amongst its members. Also, UK physics has an "old" age profile. In 2002-3, 40% of academics were over 50, only 11% younger than 34. Many are on the verge of retirement indicating radical turnover in the next decade. Inspired by the American Physical Society’s model, the IoP has been conducting a revealing series of university site visits to assess the climate for women in physics departments and identify best practice. A report is due soon. Other recent IoP initiatives for women include a sponsored workshop on the presentation of women scientists in TV drama and a study into entrepreneurship of women physicists (just commissioned). These clearly indicate the breadth of the Institute’s activities and its commitment.

3. Women in Physics Group\textsuperscript{11} of the Institute of Physics UK (WIPG)

WIPG is a professional group within the IoP whose meetings, annual newsletters and email networks inform members about progress for women in SET, career paths, best practice and current issues. The committee aims to reflect the varied careers of women physicists in industry, commerce, academia, teaching and research. Also WIPG works as a pressure group and members are encouraged to participate fully in IoP activities.

Following the 2002 Paris IUPAP conference, the UK team wrote a major report Women Physicists Speak\textsuperscript{11}, a Good University Guide recommending good practice. More recently an Advisory Panel has been set up of influential women physicists. Also WIPG has established strong links with other professional groups of women in SET which have led to involvement in policy making discussions. Other outcomes have been that WIPG has joined MentorSET and runs a series of heavily subsidized personal development workshops. WIPG is convinced of the importance of exciting the interest of young children in physics; therefore is encouraging physicists to visit primary schools. Research Council funding has been awarded to enable a team to provide web-based support material.

4. Outlook

Major issues remain to be tackled; however, there are small but positive indications of progress. In 2002 only 2% of professors of physics were women, by 2004 they were 4% and the number is rising steadily. Also the number of girls studying A-level physics remains steady in contrast to a marked decrease in boys’ entries. So we are optimistic that women are being attracted to physics and being successful. But more needs to be done to achieve true equality.

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