

## **Report for the Athena Forum from the London Mathematical Society**

### **1. The Fundamentals**

The London Mathematical Society (LMS) is the UK learned society for mathematics and has a long-standing concern for the damage to the health, strength and future of mathematics through the loss of women at all stages from school, university and research.

This concern led, in 1999, to the setting up of a Women in Mathematics (WIM) Committee. This committee has a representative from the Institute of Mathematics and its Applications and also has members of the Royal Statistical Society so that it can represent and work for women across the whole spectrum of the mathematical sciences. It also has a representative from the European Women in Mathematics organisation. The current Chair of the Committee is not a member of Council but does have the right to attend Council meetings and is notified of all items coming to Council for discussion. The Chair can (and does) bring matters to Council for discussion. Some of the Committee members are also Council members. In addition to the chair, there are currently 9 other Committee members – all mathematicians of high standing, including both women and (a minority of) men. The Committee has a budget of some £10,000 per year. Since 2002 one of the two Vice Presidents of the LMS has been a woman; one of the current Vice Presidents is a former chair of the Women in Mathematics Committee and continues to liaise with the Committee.

The Committee has several roles. It keeps under review issues relating to women mathematicians and, where appropriate, proposes and carries out actions aimed at ensuring equality of opportunity and treatment. For example, the committee was concerned to see that the RAE Applied Mathematics Panel was one of only two subpanels (we understand) to have no women members. The committee and the LMS President wrote to HEFCE concerning this matter and suggested a number of suitable women. HEFCE expressed concern at the situation although no changes resulted. Some ways in which the committee has been more successful in influencing policies are described in later sections.

The Committee also organises two events each year, both financed by the LMS. The first of these – the Mary Cartwright Lecture, named after a very eminent mathematician of the 20th century – aims to increase the awareness of women in mathematics by ensuring that at least one important Society lecture each year is given by an outstanding women mathematician. The second event, the Women in Maths Day, brings women mathematicians from across the country together for one day to share their mathematical research and experiences. This is attended by many postgraduates and we hope it encourages them to continue in their mathematical careers.

The Committee also runs two grant schemes. The Grace Chisholm Young Fellowship provides some support when a mathematical career has been interrupted by family responsibilities, relocation of a partner or other similar circumstances. The financial support provided is small but is sufficient to provide the holder with a position in an academic institution and thus access to resources and to other mathematicians – prerequisites to remaining current in the subject. The Society also offers childcare grants which can be claimed to help offset the additional childcare costs incurred when attending a conference or on a study visit. The committee is in the process of discussing further grants which could be awarded to offset the difficulties particularly women encounter to staying in mathematics.

One of the tasks of the Committee is to collect data from HESA concerning the number of women at various levels within mathematics. There are relatively large numbers of women undergraduates but the proportion of women drops dramatically at each stage with only a very small percentage of professors of mathematics being women. Ways in which the Committee has worked with others to try and address this issue are described in section 2.

The committee also gathered data after the last RAE showing the proportion of women that were entered in various disciplines of mathematics and at various ages. This raised many concerns and the Committee wrote a report highlighting some of these issues which appears on the LMS web site.

The LMS Prizes Committee recently noted its concern that the proportion of women prize winners was lower than would be expected. To try to address this problem, discussions were held between members of the Prizes Committee and the WIM Committee. Several measures have now been taken to try to increase the number of nominations for these prizes and, in particular, the number of nominations for women.

## **2. Research and Academic Appointments and Promotions**

As mentioned in Section 1, the Society is particularly concerned by the dramatic drop in the percentages of women mathematicians at each level of seniority. These decrease from 39% of undergraduates to 3% of professors. In 2007, the Chair of the WIM Committee led a plenary session at the annual meeting of the Heads of Departments of Mathematical Sciences (HoDoMS) to raise debate of these issues. The session included a presentation by Professor Peter Main of the Institute of Physics (IOP) who described the Juno Code of Practice for physics departments that was about to be introduced to try to address some of these issues. He was particularly concerned to note that the drops in percentages of women in mathematics were worse than for physics. There was broad support from HoDoMS for the suggestion that a similar code of practice for mathematics departments be developed.

Following this meeting, several discussions have taken place between the Chair of HoDoMS, the WIM Committee and the IOP as the best way to progress this issue. At a recent meeting it was agreed that a code of practice for mathematics based on the Juno code would be introduced. A Convenor (who is a former Chair of the WIM Committee and a member of the HoDoMS Committee) has been appointed to be in charge of this project which will be run by a steering committee consisting of the Convenor, the Chair of the WIM Committee and the Chair and one other member of the HoDoMS Committee. The administrative support for the project will come from the LMS and the financial support will come from both the LMS and HoDoMS. Applications from departments to become Juno supporters or champions will be considered by panels drawn from a pool of members of the LMS and HoDoMS.

## **3. Career Development**

The introduction of the Code of Practice described in Section 2 should address some of the issues of career development and lead to better working practices within departments.

One of the activities which the WIM Committee organises is an annual Women in Maths Day. This is very well attended – and indeed has been oversubscribed for the past couple of years. The day consists of talks given in the morning by successful women mathematicians at various stages of their careers followed by shorter talks in the afternoon given by women at an early stage of their careers. The Committee has also recently introduced a Poster competition for women at an early stage of their careers with a prize being awarded for the best poster. This day is particularly well attended by postgraduates and the Committee hopes that it will encourage them to continue with their mathematical careers. It provides a friendly environment in which younger women can give talks to a supportive audience and also be inspired by hearing successful women talk about their own experiences and research. Women also appreciate the chance to talk informally over lunch where they can share their own experiences and also ask for advice. It is hoped that the poster prize will encourage women to prepare posters of a high quality and will encourage and assist the winner to continue on to a successful career.

One of the areas which the WIM Committee has been monitoring with some concern is the number of women speakers at various mathematical conferences. This seems to be lower than would be expected. The LMS offers various grants including grants to conference organisers. The WIM Committee has discussed the issue of women speakers with Programme Committee which runs the main LMS grants schemes. It has recently been decided that the LMS grant application forms will now contain a question asking the organiser whether the meeting will include both men and women speakers and, if not, to give a brief justification of why this is not possible or appropriate. Once this wording has been finalised it is planned to raise this issue with other grant giving bodies and suggest that they consider a similar approach to that of the LMS.

The WIM Committee has also been approached by the Isaac Newton Institute in Cambridge as it is concerned by the low numbers of women participating in the long term research programmes which it organises. Participating in such a programme would be an excellent way of developing a research career. The Committee came up with several suggestions as to how the numbers of women could be increased – for example, by offering participants more flexible arrangements so that they could visit the institute for a number of days each week rather than for several weeks at a time. These ideas were positively received and further discussions have been suggested.

#### **4. STEMM Departmental Organisation and Culture**

In March 2008 the LMS Council approved a statement on women in mathematics to ensure that Council and LMS committees were mindful of, and gave proper consideration to gender issues. This statement is on the front page of the LMS website and it is planned to pass this on to other societies. The statement is as follows:

##### **Council Statement on Women in Mathematics (20 March 2008)**

The London Mathematical Society is concerned about the loss of women from mathematics, particularly at the higher levels of research and teaching, and at the disadvantages and missed opportunities that this represents for the advancement of mathematics. This can occur for several reasons:

- Women are more likely to have had broken career patterns or worked part time on account of child-rearing and family responsibilities.
- The fact that there are fewer women in the mathematics community means that they are often overlooked when names are sought, for speakers or for prizes, for instance.
- Those few women who reach the higher levels are disproportionately called on to sit on committees etc., to the detriment of their own careers.
- Women are often called on to take part in .people-based. activities rather than .research-based. activities, to the detriment of their own careers.
- Compared with men, women tend not to press their case but to understate their skills.

The Society recognises the need to give active consideration to ensuring that men and women are treated equally in their prospects, recognition and progression. Such disadvantages as do occur are often the unintentional outcome of the formulation of regulations and procedures which do not give adequate attention to the needs of people in such positions.

Accordingly, the Society will:

- (a) be aware of and seek to ensure an appropriate gender balance on its committees and working groups, and encourage the Nominating Committee to give similar attention in its proposals for election;
- (b) keep under review the regulations governing its membership, prizes, awards and grants to ensure that they do not inadvertently deter or fail to recognize people with non-standard career patterns;

- (c) actively encourage and facilitate the nomination of women for its prizes and awards, and ensure that it considers women when it is proposing nominees for external prizes and positions;
- (d) actively seek to include women speakers in its meetings and workshops;
- (e) expect that the organisers of conferences and activities who are seeking grants from the Society will: invite both male and female speakers, or explain why this is not appropriate or possible; and give consideration to the provision of mechanisms to enable participation by people with children or family responsibilities;
- (f) collect data and thereby monitor trends in the above.

Much of this statement reflected current good practice that was operating within the society. For example, as described earlier, measures have already been taken to try and encourage the nomination of more women for prizes. Also, the regulations for prizes were changed so that they no longer have age limits but are expressed in terms of the number of years worked at full-time equivalent. It was decided not to impose strict quotas on the number of women that should be on each committee, recognising that the relatively few women who are active on committees should not find themselves compromising their mathematical careers with too many extra calls on their time.

## **5. Work Life Balance Flexibility across the Working Day, Working Year and Working Life.**

As described in Section 1, the WIM Committee operates two grant schemes in this area. The Grace Chisholm Young Fellowship provides some support when a mathematical career has been interrupted by family responsibilities, relocation of a partner or other similar circumstances. The Society also offers childcare grants which can be claimed to help offset the additional childcare costs incurred when attending a conference. Further, the Society will reimburse extra childcare costs incurred as a result of an individual carrying out LMS business. It regrets that many Universities, funding bodies and conference organisers will not finance childcare costs but will only finance travel, accommodation and subsistence.

The Committee is currently discussing other ways in which grants could be used to retain women in mathematics. One of the possibilities being considered is to offer extra research funding on returning from maternity leave.

One of the Committee's most successful actions was to write to the EPSRC following concern voiced by an individual that an Advanced Research Fellowship could not be extended to allow for part-time working and maternity leave. Having consulted other fund giving bodies on this issue, the EPSRC changed its policy so that such extensions are now possible.

The Society recently changed the regulations governing its membership and prizes to allow for non-standard career and working patterns. Regulations are now worded in terms of career stage and the number of full-time equivalent years worked.

As mentioned in Section 3, the WIM Committee has been involved in discussions with the Isaac Newton Institute concerning ways in which to increase the number of women participating in their research programmes. Many of the issues discussed there concerned flexible working patterns and childcare arrangements as well as specifically encouraging women returning from career breaks to attend.

Finally, the introduction of the Code of Practice discussed in Section 2 should also have an impact upon the way in which departments operate in this regard.