

2009 Annual Report to the Council Committee on the Profession

The Committee on the Profession (CoProf) held its annual meeting on September 12-13, 2009, at the O'Hare Hilton Hotel in Chicago, IL. Highlights of that meeting are provided below.

Annual review: CoProf's annual review, conducted by a subcommittee, was on the topic of the Society's activities related to the human rights of mathematicians. The subcommittee felt that the charge of the Committee on the Human Rights of Mathematicians (HRM), revised in 2003 by CoProf, now has the appropriate balance between being "too political" and "too limited" (opinions held by former members of the HRM committee). The current chair of the HRM committee has asked for additional staff support from the AMS, such as providing information at the beginning of the chair's term about committee members and their contact information, and helping to set up conference calls. The subcommittee endorsed this request for staff support. The subcommittee observed that the charge to the HRM committee suggests that there might be actions taken after investigation of an issue or event. It needs to be made clear whether it should be HRM committee members or others in the AMS governance structure who should act.

2009 Information Statement on the Culture of Research and Scholarship in Mathematics: The Committee on the Profession has been making a series of statements that highlight ways in which the traditions of mathematics differ from those in other disciplines, especially other sciences and engineering. This year, CoProf discussed a statement concerning citation and impact in mathematical publications. The 2009 statement is included at the end of this report.

Programs that Make a Difference: In January 2005, Council endorsed CoProf's recommendation to recognize two programs each year that: (1) aim to bring more persons from underrepresented minority backgrounds into some portion of the pipeline beginning at the undergraduate level and leading to an advanced degree in mathematics, or retain them in the pipeline; (2) have achieved documentable success in doing so; and (3) are replicable models. Last year, the subcommittee requested that they proceed on a different schedule, with a call for nominations sent out in the summer, and the subcommittee to make its decisions in the fall. This year's subcommittee is following a similar schedule, and will make its decision in November. Subsequently, CoProf will have the opportunity to endorse the subcommittee's decision by email. The two programs that are chosen will be featured in the May 2010 issue of the *Notices* and will be presented on a web site linked to the AMS home page. The two programs recognized in 2009 were the Department of Mathematics at the University of Mississippi and the Department of Statistics at North Carolina State University.

CoProf is recommending to the Council that the statement of Programs That Make a Difference, passed by the Council in January 2005, be changed to allow more flexibility

in choosing the programs that will be highlighted. The recommended changes appear elsewhere in the Council agenda.

Request from a member concerning past AMS practices: A member of the AMS wrote to request that the AMS apologize to its black members for scheduling meetings in southern colleges and universities that did not permit black colleagues from nearby colleges to attend. Since the subcommittee charged with addressing this issue made no recommendation, CoProf tabled the request.

Prizes: In February 2009, President George Andrews appointed a Task Force on Prizes, whose charge is “to carefully consider the principles by which the Society seeks and creates new prizes”. The members of the Task Force are Alejandro Adem, Eric Friedlander, Robert Guralnick, William Jaco, Chawne Kimber, Bryna Kra and Francis Edward Su, many of whom are also members of CoProf. CoProf’s discussion on prizes, attended also by the Task Force chair William Jaco, was held in order to inform the Task Force about the concerns that CoProf has had on this topic. The Task Force will meet at the 2010 Joint Mathematics Meetings. CoProf approved the recommendation that the AMS journal editors be polled as a matter of policy in order to come up with nominations for the Moore Prize. CoProf also discussed the possibility of changing the time limit for eligibility for the Satter Prize, but decided not to change the current time limit of six years.

Nominee Program: For some time, there has been concern about the Nominee program, which allows institutional members with graduate programs to enroll all of their graduate students as members of the AMS. The Committee on Publications expressed particular concern in its annual review this year about a “Green Initiative” that was launched in early 2009 for Nominees, requiring a Nominee member to alert the AMS if he or she wished to receive paper copies of the *Notices*. AMS staff members who work on membership issues asked CoProf to establish a Working Group, composed of several AMS staff members as well as volunteers, in order to discuss ways to improve the current Nominee program. The Working Group will be appointed in the fall of 2009, and will report back to CoProf in the fall of 2010 with its conclusions.

Employment Issues: CoProf was informed about the report of the Task Force on Employment Prospects, and the updated employment services of the AMS. The committee discussed the Claremont Colleges Math-In-Industry Workshop as a model for how the job landscape could be enlarged for early career mathematicians. CoProf decided, after reviewing a preliminary report by a subcommittee, not to write a general statement on the ethics of faculty hiring.

CoProf Panel at the 2010 JMM: CoProf will have a panel at the 2010 Joint Mathematics Meeting in San Francisco. The panel will be: *What I wish I had known when applying for a job*, moderated by Christopher McCord, Northern Illinois University. The panelists are Elizabeth Beazley, University of Michigan and Williams College; Julie Bergner, University of California, Riverside; Tony DeRose, Pixar Animation Studios;

Karl Kempf, Intel and Arizona State University; Bryna Kra, Northwestern University; and Ken Ono, University of Wisconsin-Madison.

Panel description: This panel will give a first-person look at the process of applying for positions, both inside and outside academia. Through their experiences, panelists will help young mathematicians understand how to approach the job search process: what to expect; how to prepare; what to do; and what not to do. This session will focus on the employment opportunities for doctoral students and recent PhD graduates, and will give you lots of chances for Q & A with the panelists. The panelists will include both people who have recently been on the job market, and people who have recently been on hiring committees.

Next meeting: The Committee on the Profession will hold its next meeting on October 23 – 24, 2010, in Providence. The Committee selected the Society's activities in the area of Professional Development as the topic of the next year's annual review. This topic was last reviewed in 2001. CoProf has chosen teaching loads as a topic for next year's information statement on the culture of mathematics.

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November 24, 2009*

2009 Statement The Culture of Research and Scholarship in Mathematics: Citation and Impact in Mathematical Publications

A scientist's publication record is the basic "statistic" on which promotion, salary and funding decisions are made. In many fields the *number* of citations to a work, the order of authorship, and *impact factor* of the journal, are used as proxies for expert evaluation. For a variety of reasons, mathematicians have not embraced the impact factor as a reliable indicator of a journal's quality. Indeed, there are documented cases where unscrupulous editors have dramatically inflated the impact factors of entirely undistinguished journals; in one case the IF exceeded that of all journals published by SIAM, save for the SIAM Review.¹

As in many other things, the cultural norms within mathematics are quite different from those in other fields of science. For example, the authors of a mathematical paper are almost always listed alphabetically by surname; all authors are assumed to have made substantive intellectual contributions to the work.

Several issues combine to require careful consideration of publication cultures before understanding and using citation statistics in Mathematics. Mathematics articles tend to be longer, including more detail and exposition (to allow readers to reconstruct arguments with ease), and to be more idiosyncratic in approach (including special examples, and new proofs of known results) than in other disciplines; this requires longer writing times. They also tend to require a longer period to read and digest properly; both refereeing times and first citation times can be an order of magnitude longer.²

¹ See *Integrity under attack: the state of scholarly publishing*, Douglas N. Arnold, SIAM Review, December 2009.

² In 1992, the average time to publication in math journals was 600 days. H.A. Abt, *Publication practices in various sciences*, Scientometrics, Volume 24, Number 3 / July, 1992, DOI 10.1007/BF02051040, Pages: 441-447.

Citations tend to be focused and targeted to specific required results rather than being used as a broad survey of the field. It is becoming increasingly common for papers on the oft-used, but unrefereed, preprint archive, arXiv.org, to be accepted as citations in published work. Citations of unpublished, but well known, manuscripts have been accepted in mathematical journals for decades, which may also contribute to the lower level of citations to published work. Relative to other fields of science, all of these factors tend to shorten the publication list and citation statistics of senior mathematicians.

These citation practices may contribute to the relatively low impact factors of even the most prestigious mathematical journals, as compared to those in other fields.³ Other reasons for this disparity are the relatively small size of the mathematical community, that many core mathematical journals are *not* included in the computation of the impact factor,⁴ and the fact that 90% of the citations for a mathematical paper occur more than two years after its publication, (and therefore are not counted in the IF).⁵

As in other fields, there is a fairly good consensus within the mathematical community of the relative merits of most major journals; this ranking plays a much larger role in assessing the publication record of an individual than the IFs of the journals. While a mathematician's publication record is considered in determining his/her standing, much greater weight is placed on the substance of the work itself, and its impact *on the subject*, as assessed by experts within the field, than on the number of citations to that work, and the IFs of the journals in which it appears.

³ The highest IFs for Math journals are about 2.5, as compared to 15 for Science and Nature, and 35 for New England Journal of Medicine.

⁴ *Citation Statistics*, a report of the IMU-ICIAM-IMS, by Robert Adler, John Ewing, and Peter Taylor, June 2008. Available at <http://www.ams.org/ewing/Documents/CitationStatistics-FINAL-1.pdf>

⁵ For example, the two-year 2006 IF of the Annals of Mathematics, arguably the most prestigious journal in the field, is 2.43, while the four-year IF is 4.28, and the 25-year IF is 24.82.