

**Committee on the Profession**  
**Annual Report**  
**2013**

The Committee on the Profession (CoProf) held its annual meeting on September 28-29, 2013, at the AMS Headquarters in Providence, Rhode Island. Abigail Thompson, University of California, Davis, chaired the meeting. Highlights of that meeting are provided below.

***Regular agenda items:***

- **Annual review:** CoProf's annual review, conducted by a subcommittee, was on the topic of the increased communication and cooperation with other disciplines. The subcommittee made a number of recommendations in the following areas:
  - Cooperate in advocacy
  - Cooperate in interdisciplinary science and increase awareness
  - Cooperate in education
  - Get a bigger megaphoneCoProf accepted the report of the subcommittee, which agreed to continue to work by email to provide specific ways in which their recommendations could be accomplished.
- **2013 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 considered a statement concerning the undergraduate research in mathematics. The statement was revised and approved, and appears at the end of this report. It has been posted on the AMS web site.
- **Programs that Make a Difference:** Each year, CoProf recognizes at most two programs that: (1) aim to bring more persons from underrepresented 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. The deadline for nominations was September 13, 2013, for programs to be considered for the 2014 recognition. The recommendation of the subcommittee was approved by CoProf. Three nominations were continued from last year; we received five new nominations. The one or two programs that are chosen will be featured in the May 2014 issue of the *Notices* and will be presented on a web site linked to the AMS home page. The program recognized in 2013 was the Nebraska Conference for Undergraduate Women in Mathematics.
- **CoProf Panel at the 2013 JMM:** CoProf had a panel on January 9, 4:40 – 6 pm, at the 2013 Joint Mathematics Meeting in San Diego. The panel, *Getting started as a research mathematician*, was moderated by David Vogan, MIT.

- **CoProf Panel at the 2014 JMM:** CoProf will have a panel on January 15, 4:30 – 6 pm, at the 2014 Joint Mathematics Meeting in San Diego. The panel, *Online Courses: Benefits and Pitfalls*, will be moderated by Abigail Thompson, University of California, Davis.

*Panel description: Massive open online courses (MOOCs) are currently developing at a rapid pace. Their educational potential and possible effect on the structure of colleges and universities are hot topics in higher education. This panel aims to discuss the potential impact on students, faculty and mathematics departments. How is student learning in a MOOC different from in a conventional classroom environment? What kinds of support do students need at their home institutions? How will allowing students to take MOOCs for credit, in lieu of traditional courses, affect departments at the home institutions? How should the mathematics community respond to this trend? The panel will aim to discuss these and other questions concerning MOOCs.*

- **Reports:** The following staff reports were included in the CoProf agenda:
  - **Report on the Department Chairs Workshop**, written by Anita Benjamin of the Washington Office
  - **Report on Membership**, written by Diane Boumenot, manager of the Member and Programs Department
  - **Report on Employment Services of the AMS**, written by Diane Boumenot, manager of the Member and Programs Department
  - **Report on Student Chapters**, written by Diane Boumenot, manager of the Member and Programs Department
  - **Report on the Mathematics Research Communities**, written by Ellen Maycock, Associate Executive Director of Meetings and Professional Services

*Agenda items that have been endorsed by CoProf and will be taken to the Council for consideration:*

- **Best practices for prizes:** CoProf endorsed the *AMS Prize Committee Best Practices* document, which was written by the Prize Oversight Subcommittee and modeled after a similar document created by the American Chemical Society for their prize committees. The document, which is included at the end of this report, is intended to encourage practices that should be helpful towards maximizing fairness and thoughtfulness in prize decisions, including practices that encourage diligence and that may be useful in reducing unconscious bias.
- **Prize nominations for multiple years:** CoProf endorsed a recommendation to keep prize nominations active for multiple cycles subject to compatibility with the prize terms.
- **Beal Prize Committee charge:** CoProf endorsed the following charge to the Beal Prize Committee:

### General Description

- Committee is standing
- Number of members is three. Members are appointed by the AMS President.
- Term is six years. A member can serve two consecutive terms, but not more.

### Principal Activities

The committee is responsible for overseeing determination of the validity of a claim that the Beal Prize Conjecture has been proved or that a counterexample has been found. The procedure for determining if an award of the prize is warranted shall be approved by the Executive Committee and Board of Trustees (ECBT) and Council and documented in Minutes of the ECBT and Council. A recommendation by the prize committee to award the prize shall be made to the ECBT for its approval.

- **San Francisco Declaration:** CoProf recommended that the Council vote to endorse this declaration, which is included at the end of this report.

- **Joint Committee on Women items:**

- **JCW charge:** CoProf endorsed the proposed charge for the Joint Committee on Women. This charge has already been approved by the governing bodies of the other societies participating in the joint committee.

The Joint Committee on Women serves primarily as a forum for communication among member organizations about the ways in which each organization enhances opportunities for women in the mathematical and statistical sciences. JCW disseminates information about effective mechanisms and best practices for these enhancements through media such as its website, society publications, and presentations at meetings of the member societies. The Committee also may recommend actions to the governing bodies of the member societies in support of these opportunities.

Areas of attention include, but are not limited to: attracting women to mathematical and statistical sciences, retaining and advancing women in their careers, creating a professional community that is welcoming and supportive regardless of gender, and supporting the adoption of practices that minimize the potential for bias.

- **JCW member from AMATYC:** CoProf endorsed the proposal that the Joint Committee on Women have a representative from the American Mathematical Association of Two-Year Colleges. This proposal has already been approved by the governing bodies of the other societies participating in the joint committee.
- **Welcoming environment policy:** The JCW has recommended that each participating society consider formulating a policy that would address the issue of sexual harassment at its meetings. CoProf recommended that a subcommittee be formed to discuss this recommendation, with one member each from CoProf, CoMC and CoWIM.

- **Fellows Selection Committee:** The Fellows Selection Committee presented a report to CoProf with several recommendations.
  - CoProf endorsed the proposal that no self-nominations be allowed.
  - CoProf endorsed the following statement, which, if approved by the Council, would be added to the charge of the Fellows Selection Committee: "Current members of the Selection Committee may not participate in a Fellows nomination either as a principal nominator or as a supporting member."
- **Joint Committee on Mathematicians with Disabilities:** CoProf endorsed the proposal brought by the AMS Secretary that this committee be disbanded, as these issues are better addressed by other existing committees.

*Agenda items relating to prizes:*

- **Report from the Prize Oversight Subcommittee:** The Prize Oversight Subcommittee brought a number of ideas and recommendations to CoProf for consideration. Several of the recommendations were endorsed by CoProf and will be brought to the January 2014 Council meeting. Additionally, CoProf discussed the possibility of new prizes, and agreed to recommend to the Development Committee that the AMS consider establishing a mid-career prize named after an exceptional female mathematician with selection criteria having nothing to do with gender. CoProf also agreed that one or more new prizes should be established in specific areas of mathematics not currently being recognized. CoProf also discussed the recommendation that a prize canvassing committee should be created. CoProf requested that the Prize Oversight Subcommittee make specific suggestions on this topic.
- **Beal Prize procedures:** CoProf deferred taking action on a proposed set of procedures for the Beal Prize until an attorney has reviewed the procedures.
- **Review of the amount and frequency of research prizes:** CoProf has unanimously approved the following recommendation to the ECBT by electronic vote:
  - The Committee on the Profession makes the following recommendation:
    - that the Steele Prize for Lifetime Achievement be increased to \$10,000;
    - that the Prize Oversight Subcommittee continue to discuss the review of the amount and frequency of prizes in a careful manner.

*Other business:*

- **Adjunctification of academia:** There has been concern that academic departments now employ large numbers of faculty who are not in tenured or tenure-track positions. CoProf formed a subcommittee to consider this issue in

mathematics. Based on the report that the subcommittee presented to CoProf, it was decided that the subcommittee should write up a best practices document that could be posted on the AMS website once it is approved by the Council.

- **Life membership formula.** An AMS member requested that the AMS consider altering its current formula for Life membership. A majority of CoProf members was satisfied with the current structure and no changes were recommended.
- **Endorsement of the Budapest Semester.** The AMS was asked to endorse the Budapest Semester in Mathematics. No process is currently in place for the AMS to make such an endorsement. CoProf agreed that this is an excellent program, but at this time will not move ahead with an endorsement.
- **CoWIM report:** The newly formed Committee on Women in Mathematics made a report to CoProf, which listed a number of topics that were being discussed by the committee. CoProf recommended that CoWIM discuss family leave policies for all faculty in addition to graduate students. Also, CoProf recommended that CoWIM should discuss the use of GRE scores for graduate programs.
- **Centennial Fellowship parameters:** At the May 2013 ECBT meeting, concern was expressed about the current level and the use of funding for the Centennial Fellowship. CoProf felt that these were acceptable and decided that no changes were needed.
- **Standing Committee on Members and Member Benefits:** At its meeting in September 2011, CoProf voted to establish a standing Committee on Member and Member Benefits, but no one was appointed to serve on the committee. At the 2013 meeting, CoProf members were appointed to this committee.

**Next meeting:** The Committee on the Profession will hold its next meeting on September 13 - 14, 2014, at Hilton Chicago O'Hare Airport Hotel. The Committee selected the Society's activities in the area of increasing participation at all levels of under-represented groups (e.g. women, African Americans, Hispanic Americans, Native Americans) as the topic of the 2014 annual review. This topic was last reviewed in 2005. A subcommittee will determine if the 2008 information statement should be updated. The topic for the 2014 information statement on the culture of mathematics has not yet been determined.

*Ellen J. Maycock  
Associate Executive Director  
November, 2013*

## **2013 Statement**

### **The Culture of Research and Scholarship in Mathematics: Undergraduate Research in Mathematics**

The role of undergraduate research in mathematics has features which distinguish it from similar activities in other disciplines. These differences should be understood in evaluating the participation of mathematics departments and individual mathematicians in undergraduate research.

Both demand and opportunities for undergraduate research (UR) in mathematics have increased steadily in recent years, and there is currently much excitement in the mathematics community about supporting these types of activities<sup>1</sup>, which include independent study on research projects during the academic year; organized and externally supported research activities during the summer; and informal summer research experiences run by individual faculty. These can be a powerful way to draw students into mathematics. Simultaneously, there is growing pressure from universities on faculty in all STEM disciplines to engage undergraduates in research, in order to recruit, and then retain, the best students.

One salient aspect of UR activities is that it primarily is a *teaching* effort on the part of faculty, not a research one.<sup>2</sup> Undergraduate research in mathematics is not an automatic side effect of faculty research and is usually a major undertaking for a faculty member. It usually takes 2-3 years to bring PhD students from a solid knowledge of the undergraduate curriculum to a level at which they can, even with considerable supervision, engage in mathematical research; bringing an undergraduate to the forefront of research is very unusual. Opportunities for such UR are unevenly distributed across subfields. While some UR activities have been spectacularly successful in having students participate in truly original research, and such outcomes are highly appreciated by the discipline, this is not considered the norm.

A related issue is that there is a difference between mathematics and laboratory disciplines, where students at various levels of knowledge and competency can contribute to a faculty member's own research program. In mathematics, such positive effects on faculty productivity, although not unknown, are rare.

In summary, UR requires concentrated and highly time-consuming faculty effort, which comes in addition to the duties of teaching, advising, and faculty research, and which often does not further the faculty member's research agenda. This means that, in deciding whether or not to supervise undergraduate students in research, a faculty member will need to weigh the benefits (to the students, the institution and possibly themselves) against the costs to their other professional obligations.

<sup>1</sup>See <http://www.ams.org/notices/201208/rtx120801112p.pdf>. The documents <http://www.ams.org/programs/edu-support/undergrad-research/PURMproceedings.pdf> and <http://www.ams.org/programs/edu-support/undergrad-research/REUproceedings.pdf> provide a non-exhaustive list of research experiences for undergraduates programs and information about how they run.

<sup>2</sup>Much of this Statement is informed by the responses to a CoProf survey. Of the department chairpersons contacted, 72% stated that undergraduate research is viewed as primarily a teaching effort, 16% as primarily a research effort, and 12% did not state an opinion.

## AMS Prize Committee Best Practices

The American Mathematical Society greatly appreciates the time and efforts of its prize selection committees and hopes that the procedures suggested below will help to maximize fairness of the selection process.

1. Prior to the Selection Committee deliberations, each committee member has an obligation to set aside sufficient time to consider each nominee in the pool. The committee itself should set aside sufficient time during its deliberations to consider each nominee in the pool and should apply consistent criteria for evaluating all candidates.
2. Prior to deliberating about particular candidates, the committee members should identify and agree upon the selection criteria that will be used in the evaluation process. The focus should be on what the candidate has done, not on who the candidate is. Committee members should identify the specific major contributions that nominees have made.
3. It is suggested that each committee member make a personal list of top nominees before hearing the recommendations of others to avoid undue influence. [If the committee members are nominating candidates, it is suggested that each committee member suggest at least one possible candidate and that all such suggestions are shared with the committee before any extensive deliberations take place; this may help ensure that no one committee member has undue influence on the process.]
4. Individually and collectively, selection committee members should strive to create short-lists via inclusive methods; i.e., select candidates who are outstanding rather than put forward reasons to eliminate candidates from consideration.
5. The committee should adhere to the attached AMS Conflict of Interest Statement.

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### Guidelines on Conflict of Interest for AMS Prize Selection Committees

*(as adopted by the January 4, 2007 AMS Council)*

It is difficult to draft legal rules regarding conflict of interest for prize committees. Individuals nominated for prizes are often so well known among the community that selection committee members may consider themselves colleagues. Nevertheless, a selection committee should avoid favoritism or the appearance of favoritism. And so some general guidelines on avoiding conflicts of interest are appropriate.

Selection Committee chairs and individual members need to consider the spirit of these guidelines, and members should recuse themselves or step down from the committee if they feel their participation might create an appearance of a conflict of interest.

Conflicts of interest (or the appearance of such conflicts) would most likely arise if:

1. the body of work (paper, significant piece of research, or the like) considered in the prize nomination was done by someone while a student or postdoc of the committee member;
2. the person nominated was a recent former student or postdoc of the committee member; or
3. the research being judged is in any way a collaborative effort between the committee member and the nominee.

Judging a nomination of a close friend may also create the appearance of a conflict of interest. Of course, no committee can seriously consider awarding a prize to one of its own members.

It is less clear what to do in cases where the nominee is a colleague -- a co-worker in the same department, for example. In such cases, the member of the selection committee and the chair should consider the circumstances and how they will appear to the community.

If the member of the prize selection committee feels there may be a conflict, he or she should consult with either the chair of the selection committee and/or the AMS Secretary. If after these discussions there does appear to be a conflict, the member should offer to recuse himself or herself, or to step down from the selection committee. If the possible conflict arises with the chair of the committee, then the AMS Secretary should consult with the AMS President and reach a consensus decision.

*The AMS thanks the Society for Industrial and Applied Mathematics for giving the AMS permission to adapt its policy.*

Direct questions about these Guidelines to the AMS Secretary.



# *San Francisco Declaration on Research Assessment*

## Putting science into the assessment of research

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There is a pressing need to improve the ways in which the output of scientific research is evaluated by funding agencies, academic institutions, and other parties.

To address this issue, a group of editors and publishers of scholarly journals met during the Annual Meeting of The American Society for Cell Biology (ASCB) in San Francisco, CA, on December 16, 2012. The group developed a set of recommendations, referred to as the *San Francisco Declaration on Research Assessment*. We invite interested parties across all scientific disciplines to indicate their support by adding their names to this Declaration.

The outputs from scientific research are many and varied, including: research articles reporting new knowledge, data, reagents, and software; intellectual property; and highly trained young scientists. Funding agencies, institutions that employ scientists, and scientists themselves, all have a desire, and need, to assess the quality and impact of scientific outputs. It is thus imperative that scientific output is measured accurately and evaluated wisely.

The Journal Impact Factor is frequently used as the primary parameter with which to compare the scientific output of individuals and institutions. The Journal Impact Factor, as calculated by Thomson Reuters, was originally created as a tool to help librarians identify journals to purchase, not as a measure of the scientific quality of research in an article. With that in mind, it is critical to understand that the Journal Impact Factor has a number of well-documented deficiencies as a tool for research assessment. These limitations include: A) citation distributions within journals are highly skewed [1–3]; B) the properties of the Journal Impact Factor are field-specific: it is a composite of multiple, highly diverse article types, including primary research papers and reviews [1, 4]; C) Journal Impact Factors can be manipulated (or “gamed”) by editorial policy [5]; and D) data used to calculate the Journal Impact Factors are neither transparent nor openly available to the public [4, 6, 7].

Below we make a number of recommendations for improving the way in which the quality of research output is evaluated. Outputs other than research articles will grow in importance in assessing research effectiveness in the future, but the peer-reviewed research paper will remain a central research output that informs research assessment. Our recommendations therefore focus primarily on practices relating to research articles published in peer-reviewed journals but can and should be extended by recognizing additional products, such as datasets, as important research outputs. These recommendations are aimed at funding agencies, academic institutions, journals, organizations that supply metrics, and individual researchers.

A number of themes run through these recommendations:

- the need to eliminate the use of journal-based metrics, such as Journal Impact Factors, in funding, appointment, and promotion considerations;
- the need to assess research on its own merits rather than on the basis of

- the journal in which the research is published; and
- the need to capitalize on the opportunities provided by online publication (such as relaxing unnecessary limits on the number of words, figures, and references in articles, and exploring new indicators of significance and impact).

We recognize that many funding agencies, institutions, publishers, and researchers are already encouraging improved practices in research assessment. Such steps are beginning to increase the momentum toward more sophisticated and meaningful approaches to research evaluation that can now be built upon and adopted by all of the key constituencies involved.

The signatories of the *San Francisco Declaration on Research Assessment* support the adoption of the following practices in research assessment.

### General Recommendation

1. Do not use journal-based metrics, such as Journal Impact Factors, as a surrogate measure of the quality of individual research articles, to assess an individual scientist's contributions, or in hiring, promotion, or funding decisions.

### For funding agencies

2. Be explicit about the criteria used in evaluating the scientific productivity of grant applicants and clearly highlight, especially for early-stage investigators, that the scientific content of a paper is much more important than publication metrics or the identity of the journal in which it was published.
3. For the purposes of research assessment, consider the value and impact of all research outputs (including datasets and software) in addition to research publications, and consider a broad range of impact measures including qualitative indicators of research impact, such as influence on policy and practice.

### For institutions

4. Be explicit about the criteria used to reach hiring, tenure, and promotion decisions, clearly highlighting, especially for early-stage investigators, that the scientific content of a paper is much more important than publication metrics or the identity of the journal in which it was published.
5. For the purposes of research assessment, consider the value and impact of all research outputs (including datasets and software) in addition to research publications, and consider a broad range of impact measures including qualitative indicators of research impact, such as influence on policy and practice.

### For publishers

6. Greatly reduce emphasis on the journal impact factor as a promotional tool, ideally by ceasing to promote the impact factor or by presenting the metric in the context of a variety of journal-based metrics (e.g., 5-year impact factor, EigenFactor [8], SCImago [9], *h*-index, editorial and publication times, etc.) that provide a richer view of journal performance.
7. Make available a range of article-level metrics to encourage a shift toward

assessment based on the scientific content of an article rather than publication metrics of the journal in which it was published.

8. Encourage responsible authorship practices and the provision of information about the specific contributions of each author.
9. Whether a journal is open-access or subscription-based, remove all reuse limitations on reference lists in research articles and make them available under the Creative Commons Public Domain Dedication [10].
10. Remove or reduce the constraints on the number of references in research articles, and, where appropriate, mandate the citation of primary literature in favor of reviews in order to give credit to the group(s) who first reported a finding.

#### For organizations that supply metrics

11. Be open and transparent by providing data and methods used to calculate all metrics.
12. Provide the data under a licence that allows unrestricted reuse, and provide computational access to data, where possible.
13. Be clear that inappropriate manipulation of metrics will not be tolerated; be explicit about what constitutes inappropriate manipulation and what measures will be taken to combat this.
14. Account for the variation in article types (e.g., reviews versus research articles), and in different subject areas when metrics are used, aggregated, or compared.

#### For researchers

15. When involved in committees making decisions about funding, hiring, tenure, or promotion, make assessments based on scientific content rather than publication metrics.
16. Wherever appropriate, cite primary literature in which observations are first reported rather than reviews in order to give credit where credit is due.
17. Use a range of article metrics and indicators on personal/supporting statements, as evidence of the impact of individual published articles and other research outputs [11].
18. Challenge research assessment practices that rely inappropriately on Journal Impact Factors and promote and teach best practice that focuses on the value and influence of specific research outputs.

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