

A Fellows Program for the AMS

Editor's Note: This special section was organized by AMS president James Arthur (University of Toronto) and AMS Council member Susan Friedlander (University of Illinois at Chicago).

—Andy Magid

At the Joint Meetings in San Antonio in January, the AMS Council debated whether to place a proposal for an AMS Fellows Program before the general membership. As had been the case in past meetings, the discussion was extensive. It was also thoughtful, and at times, quite passionate. The final vote was very close. After first agreeing that the proposal would require two-thirds support by members to be implemented, Council voted 13–11 in favor of bringing it forward.

The vote by members will be a part of the AMS fall elections. The formal proposal that will appear on the ballot has been reproduced below. It is accompanied by two essays. David Eisenbud summarizes arguments that have been made against the proposal from his perspective of Immediate Past President. Ron Stern describes the arguments in favor of the proposal from his vantage point as Dean of Physical Sciences at University of California, Irvine. I thank both David and Ron for the time and thought they have invested in these essays.

Many mathematicians have strong feelings about the wisdom of creating a class of Fellows within our membership. I was personally against the idea at the beginning, but after hearing eloquent arguments in its favor, I am now sitting resolutely on the fence! I do believe that the discussion has been healthy, for it goes to the heart of how we regard the practice of mathematics. I trust that all of us will come to terms with the outcome, however the vote turns out. If the proposal is rejected (remember, it will need a two-thirds vote), we should

remind ourselves that mathematicians will nevertheless gain respect from others if their demeanor reflects the pride they have in their subject. If it passes, we can take comfort in knowing that mathematics ultimately belongs to all of us, and that we are able to express gratitude to those who have brought us new ideas. These sentiments are of course not always part of our day-to-day thinking, but I believe they approximate something we should be aiming for.

In any case, I hope that members will think about the proposal, discuss it with colleagues, and above all, vote on it! In fact, it would not be out of place for those with strong views to campaign vigorously in support of their position. A large vote, whatever the outcome, would be a clear indication of the strength of our Society.

—James Arthur, *President*

A Proposal for a Fellows Program of the AMS

The Goals of the Fellows Program are:

- To create an enlarged class of mathematicians recognized by their peers as distinguished for their contributions to the profession.
- To honor not only the extraordinary but also the excellent.
- To lift the morale of the profession by providing an honor more accessible than those currently available.
- To make mathematicians more competitive for awards, promotions, and honors when they are being compared with colleagues from other disciplines.
- To support the advancement of more mathematicians in leadership positions in their own institutions and in the broader society.

I. Program (steady-state)

A. The Fellows Program of the American Mathematical Society recognizes members who have made outstanding contributions to the creation, exposition, advancement, communication, and utilization of mathematics.

B. The responsibilities of the Fellows are:

- To take part in the election of new Fellows,
- To present a “public face” of excellence in mathematics, and
- To advise the president and/or the Council on public matters when requested.

C. All AMS members are eligible to be elected Fellows.

D. The target number of Fellows will be determined by the AMS Council as a percentage of the number of eligible members.¹ The target percentage will be revisited by the Council at least once every ten years and may be increased or decreased in light of the history of the nomination and election process. The intended size of each year’s class of new Fellows should be set with this target size in mind.

E. Following an election process (see below), individuals are invited to become Fellows. They may decline and they may also resign as Fellows at any time.

¹This proposal’s recommendation to Council is 5% of eligible members. At present there are about 30,000 eligible members so the number of Fellows would be about 1,500.

F. Each year all Fellows are invited to a reception at the AMS annual meeting, and the new Fellows are introduced at this reception, followed by a press release. New Fellows receive a certificate and their names are listed on the AMS website. The names of new Fellows are also included in the *Notices*.

G. If they are not already Fellows, the AMS president and secretary are made Fellows when they take office.

II. Election Process

A. New Fellows are elected each year after a nomination process. Eligible voters consist of current Fellows who are also members of the Society. Both the election and the nomination process are carried out under the direction of the secretary with help from the AMS staff.

B. The Election Committee will consist of nine members of the AMS who are also Fellows, each serving a three-year term, and with three new members appointed each year. The AMS president, in consultation with the Executive Committee of the Council, nominates the new members of the Election Committee in November of each year. At the same time, the president nominates a continuing member of the Election Committee to serve as chair. The president’s choices are approved by Council at its January meeting.

C. The Election Committee accepts nominations for Fellows between February 1 and March 31 each year. Nominations are made by members of the AMS. A member can nominate no more than 4 nominees a year.

D. To be eligible for nomination to Fellowship, an individual must be an AMS member for the year in which he or she is nominated as well as for the prior year.

E. A nominator must supply a package with the following information on the nominee:

1. A curriculum vitae of *no more than five pages*.
2. A citation of fifty words or less explaining the person’s accomplishments.
3. A statement of cause of 500 words or less explaining why the individual meets the criteria of Fellowship.
4. The signatures of the nominator and three additional AMS members who support the nomination, with at least two of these individuals current Fellows.

F. A person can be nominated no more than 3 times in a 5-year period.

G. Each year the January Council provides a guideline for the number of nominations to appear on the ballot. The Election Committee assembles the ballot from the nominations bearing in mind this guideline, diversity of every kind, and the quality

and quantity of the external nominations. The Election Committee has the discretion to make nominations itself to fulfill the general goals of the Fellowship.

H. The ballot is available electronically (only) and voting is conducted throughout the month of September each year. The curriculum vitae and citation for each candidate will be available to all eligible voters. Election is by plurality with the top one-half of the candidates elected. In case of a tie, more than one-half of the candidates may be elected.

I. Those nominees elected are invited by the president to become new Fellows of the AMS as of January 1 of the following year.

III. Initial Implementation

A. In the initial year of the program, all eligible AMS members who have done one or more of the following are invited to become AMS Fellows.²

1. Given an invited AMS address (including at Joint Meetings).
2. Been awarded an AMS prize.
3. Given an invited address at an ICM (International Congress of Mathematicians).

B. An additional 50 Fellows are selected by a committee appointed by the president with the advice of the Executive Committee of the Council. Particular attention will be paid to selecting AMS members recognized for their contributions to education and service to the profession.

C. For the initial “seed pool” of Fellows there is no length of AMS membership required. Any person who falls into one of the three categories above, and who is an AMS member during the year in which this program is initiated will be invited to become a Fellow.

D. At least ten (10), but no more than fifty (50), new Fellows are elected each year until the total number of Fellows reaches 95% of the targeted size of the Fellowship.³

² *The seeding process described in III.A would produce offers of Fellows status to more than 800 current AMS members. The group of Invited Speakers also includes approximately 400 additional individuals who are not currently AMS members.*

³ *If 1,000 Fellows are named through the initial seeding, then we estimate that a steady state of 1,500 would be achieved in approximately 10-20 years under the enclosed plan.*

Science or Politics at the AMS?—A Divisive Proposal

David Eisenbud

One of the most discussed issues before the AMS Council during the time I was President was the question of whether the AMS should start a Fellows program. Both the Council and the Committee on the Profession were almost evenly divided on the issue, but the Council voted by a small majority to put it to a vote of the whole membership, which is about to take place.

I'm writing this to urge you to vote *against* establishing such a program. Here are the reasons I think it's a bad idea.

- **The AMS should serve us all:** The society represents us in Washington, it organizes very popular meetings for us and it publishes wonderful journals, attracting a wide range of interest, from the popular *Notices* to the abstruse *Journal*. Anointing a small proportion of the membership as the chosen will certainly give the impression, whatever the reality, that the AMS is "for" this fraction more strongly than it is "for" the mass of its members. Kaplansky told his students to join the AMS because it was the nearest thing we had to a union. The AMS is at its strongest when it takes action in favor of us all. The vast majority of the AMS would *not* become Fellows, and one can only think they would suffer in relative prestige and influence in the society because of this. This is not the way the AMS should work.

- **Mathematics has a special culture:** A Fellows program goes against one of the things that makes mathematics special and wonderful: its uniquely egalitarian culture. To say that mathematics is egalitarian is not to say that we don't care about quality. Rather it's to say that we think quality can emerge anywhere, anytime. A spectacular advance on an old problem in number theory made by someone teaching at an institution without a Ph.D. program? It happened just recently in my own backyard. Similarly, great teaching happens everywhere, certainly not just at the major universities. On a more trivial level, this culture is typified by the fact that we almost always list authors of papers alphabetically. This culture is a point of pride for many mathematicians—certainly for me. A

David Eisenbud is the director of the Mathematical Sciences Research Institute and immediate past president of the AMS (2003-04). His email address is de@msri.org.

Fellows program flies in the face of this culture by rigidly ranking mathematicians.

- **Politicization in a Fellows program would be distracting and destructive:** One cannot imagine that the appointment of Fellows won't be a highly charged process! What favor can I do for Dr. X, who has just been appointed to the selection committee? Even worse, what pressure can I put on him, in seeing that his students are not tenured if he doesn't help out the case I'm interested in. Would Dr. Y like to wield the power of a committee member? How will he campaign to become one? These questions may seem like fantastical bad dreams, though I personally know of such behavior in connection with some other prizes. Even if these extreme behaviors don't happen, I think it's quite likely that who becomes a Fellow will depend a lot on who knows whom. Do we want this?

- **Enormous work:** To attempt to appoint Fellows in a way even remotely approaching fairness and transparency will be a *huge* amount of work. Alas, the example of the way in which papers are often refereed is not encouraging: I think the likely outcome is that the necessary work will not be done. Randomness and the appearance of randomness, or worse, the appearance of favoritism, will likely be strong. With enough work, maybe research could be judged in a fair way. But teaching? Excellence of committee service? There may be a few outstanding cases where judgment of any of these qualities is easy, but accurately judging a significant fraction of all the people in the field on these attributes? Hard to imagine.

- **Wandering and uncertain criteria:** Suppose for the sake of argument that the committees picked to choose Fellows find the strength and, perhaps harder, make the time to do a great job of discerning whatever they think are the qualities of Fellows. Nonetheless, the policy set by successive presidents in appointing the committees who will decide membership will surely wander; the committees' policies will wander even more. The difficulty in deciding what is "good" is already clear in Plato. Thus a kind of drift is inevitable. Suspecting that you were passed over because of this will not make being passed over any easier to take. However hard the committees work, the process is unlikely to be seen as sensible by the majority of mathematicians—those who do not become Fellows.

- **Polarization:** Trying to be quantitative, the Committee on the Profession did some research: they surveyed a group of members to ask whether a Fellows program was worthwhile. The membership was roughly split. But there was space on the survey for a free response, and those who read the responses observed that the strength of feeling on the two sides did not seem to be equal: those in favor of a Fellows program were rather mild in their preferences, but some of those opposed

expressed their positions in the strongest terms, and said they'd resign if the AMS did something so exclusionary.

- **Weakness of the argument in favor:** Some people who think they will become Fellows will certainly vote for the program simply because they feel they deserve the honor. I hope that if the program is enacted, not too many of these are disappointed! I don't regard this as the sort of argument that should drive a Fellows program forward.

There is a more altruistic argument made in favor of a Fellows program—the main argument, from my point of view. Roughly: if more mathematicians get (more) honors such as being named a Fellow, then Deans and Provosts will take mathematicians—and thus *maybe* mathematics—more seriously. It seems unlikely that this effect will operate in the strongest departments, where, I would suspect, most of the Fellows will be employed. What about the departments that are not in the top 50? There the effect might be significant, indeed. But wouldn't the main effect be to increase the influence of *individuals*, not of mathematics as a discipline? The influence of a department or a discipline depends a lot on the unity and enthusiasm with which the members work together. By simultaneously increasing the resentments within mathematics departments, it seems to me that the overall effect of a Fellows program on department standing might finally be negative.

- **The Good of the Society, the Good of Mathematics:** Given the small turnout for AMS elections, it's quite possible that the Fellows program could pass if only those who thought they would become Fellows (likely to be more than those who really would become Fellows) voted for it. Such a vote would be a mistake: we should be voting for the good of the whole society, not our personal gain. Those who feel they are likely to become Fellows have a double obligation to think about whether a Fellows program is good for the society as a whole.

Ninety years ago those who felt that the AMS was becoming too concerned with one part of mathematics decided to vote with their feet: they formed the MAA. A little more than fifty years ago, the AMS lost the loyalty and interest of another big chunk of mathematics and mathematicians, in the formation of SIAM. Justified and sensible as those moves may have been, I think that Mathematics itself lost in influence and coherence because of them. The AMS is weaker because of this, just as the U.S. would have been weaker if the South had seceded.

In recent years, I believe the Society has moved thoughtfully and purposefully toward making itself into "the big house of Mathematics" where all mathematical concerns, teaching and applications included, are welcomed. Whichever part of mathematics is closest to your heart, I think it's strongly

to the advantage of the mathematical discipline to make the people close to it feel at home in one organization. The AMS is, in my opinion, the outstanding candidate for this organization. Deliberately creating a schism dividing the AMS into Fellows and Non Fellows—the Ins and the Outs—runs against this unity. It might even invite another wave of defections.

In short, I think that to create a Fellows program would, for the sake of small and dubious benefits, risk damage to mathematics and its culture, and injury to the AMS. I urge you to vote against it.

A Celebration of Science— Why not mathematics?

Ronald J. Stern

Every November I receive a list of the roughly 200 newly elected American Physical Society Fellows, of which our campus typically has two or three. I routinely notify our communications office to prepare a news release based on the citation given for each fellow. I then contact the science writer for our major local paper, Gary Robbins of the *Orange County Register*. The citations are typically too dense or cryptic for a public audience, so I work with our communications office and Gary to put the research in a general context and they prepare text that best relates to the public about the elected fellows' contributions. Within a day or two the press release is prepared and an article appears in the *Orange County Register* listing the elected fellows and a nice article about each fellow's contributions. The dozens of smaller community papers throughout southern California routinely print the news release. In addition, our weekly faculty/staff newsletter, which is read by our 10,000 employees, does the same. This is not our student rag, but a publication designed for our faculty and staff that keeps them abreast of what is happening at our main and medical campus. Occasionally the local PBS radio or TV station picks up the press release. For very topical or unusual work, the national press picks it up. In summary, the entire professional community and roughly 2 million members of our community are exposed to physics.

This scenario is repeated throughout the year when the American Geophysical Union, American Statistical Society, Association for Psychological Science, and other professional societies announce the election of their fellows. The lack of a fellows program for the American Chemical Society is made up with the myriad of chemistry prizes they award. Again our faculty routinely receive a couple of their prizes each year and the public relations scenario is the same.

Each year most institutions update a master list of faculty that have received awards or election as

Ronald Stern is dean of physical sciences and professor of mathematics at the University of California Irvine. His email address is rstern@uci.edu.

fellow to learned and professional societies. This information appears in a variety of forms in university publications, mailings to alumni, donors, speeches by our chancellor or provost, or other public opportunities to boast about our institutions. Some individual fellows are featured in these publications, but it is usually the body count that is of most use. These counts also play a role in a variety of nationally visible rankings.

These routines and practices are repeated at every research university and institute and at the corporate and national labs. This dissemination is a wonderful celebration of the important science that is undertaken and informs the public of exciting advances in science. The election of fellows has an immense ripple effect that enhances the credibility of the societies and the sciences they represent.

As a dean I attend many social events and speak to many community groups. As a result I have developed close relationships with hundreds of wonderful and often influential community members in Orange and Los Angeles County. These are individuals who do read newspapers. They routinely remark on having seen these articles and are impressed with the scientific contributions made at the research university that resides within their community. It gives them a sense of pride to be associated with such advances. There is a huge appetite for science in our community. Such statements as "Ron, I just read that a couple of your physics faculty were elected as a fellow for what sounds like some real interesting stuff. Can you tell me more?" As a result, scientific accomplishments are discussed over coffee, at lunches, dinners, and dozens of community social events. This scenario has been, and will continue to be, repeated hundreds of times.

My point is now evident. Election as fellow to learned and professional societies results in a broad dissemination of scientific research to the entire academy and public. Also, there is the appearance of a unified voice from within the scientific discipline. Most often the name of the elected faculty member is quickly forgotten. However, the overall picture that exciting scientific research is happening at our university lingers.

The quality of the research, teaching and service as evaluated by our peers outside our institution is most important. In particular, a fellows program at the premiere academic professional societies has pecuniary advantages. Since the scientific research success of our faculty and researchers is acknowledged by a society without political or institutional bias, it makes it easier for me to argue for important dollars that will enhance the research, teaching, and service goals of our excellent science departments. Such judgments from professional and learned societies certainly grease the wheels for

research budgets, enhancing the likelihood of new science initiatives and the overall growth of science at our university.

The success of these fellows programs in celebrating and disseminating advances in the sciences has, unfortunately, come at the expense of mathematics. I squirm when my community friends say “Ron, wow, I am impressed by all I read in the papers about your science faculty. Is your mathematics department weak? I don’t read much about them.” Of course this is a wonderful opportunity to brag about what excellent faculty and research we in fact do have in our mathematics department. However, I am only influencing a handful of individuals, rather than the millions of readers of the press. Of course there are those rare occasions where one of our faculty is elected to the NAS or receives a Sloan and the press release and newspaper routine is implemented. It is these rare opportunities that we do celebrate mathematics and inform, educate, and excite the public about what we do.

As the preeminent mathematical society we now have the opportunity to celebrate mathematics and to provide on an annual basis an effective vehicle to disseminate the essence of our existence, our important and exciting research. If each year we elect no more than one-half of one percent of the then current membership of the Society as fellows, then each year 150 mathematicians will be recognized by their peers for election to the status of Fellow in the American Mathematical Society. Articles will appear in every newspaper in the nation about mathematicians and mathematics. There will be discussions over coffee, at lunch, and at dinner tables about what we create and discover. There will be a positive sense within your broad communities about the mathematical contributions your institution makes to the advancement of knowledge. We will finally broadcast and begin to recognize and reward excellence beyond the easily identifiable extraordinary.

There are some corollaries to an AMS Fellows Program. The old adage that excellence begets excellence is palpable at a research university. Those programs and individuals that are recognized as excellent are the first to be considered for further awards and recognition. Mathematics has had difficulty here largely due to our refusal as a community of scholars to assume a public responsibility to recognize excellence beyond the extraordinary. Regardless of the reasons, the result is that we do not operate on the same playing field as the other sciences. We are always a special case. As we all know, dealing with special cases can require exceptional effort, and they are easily overlooked.

Of course there are less desirable corollaries to an AMS Fellows Program. There is the extra effort involved in the administration of the program as

well as the perception that the AMS membership will be split into first- and second-class citizenship. The first is a fact and the second is a perception. Our research and educational community is, hopefully, sufficiently mature to recognize excellence without being divisive.