

# SIAM Fellows Program

## Frequently Asked Questions

This FAQ page is intended to explain the rationale for many of the choices made in designing this program. It is also intended to provide a thought-provoking summary of some of the discussions that have taken place among the committee that created [the program](#) and in SIAM Council and Board of Trustees meetings over the past several years. (These three groups are referred to as the Fellows Committee, Council, and Board below.)

Numerous questions may arise in your mind as you read [the program](#), most of which have probably been discussed at length within all the groups mentioned above; several hours have been devoted to this topic in recent Council and Board meetings. We have attempted to address many of these questions below, either with factual answers when possible or with a summary of some discussions we have had about the more complex issues.

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### Q. How was the SIAM Fellows program developed?

At its July 2006 meeting the Council established an ad-hoc Fellows Committee to study the viability of a SIAM Fellows Program. The committee's tasks included making an initial recommendation to the Council on the wisdom of having a Fellows Program and, if that recommendation was not negative, giving the Council a detailed recommendation on what form a SIAM Fellows Program might take.

The Fellows Committee was constituted at the end of September, 2006. The committee members were: Doug Arnold, John Betts, Carlos Castillo-Chavez, Pam Cook, Marty Golubitsky (chair), Nick Trefethen, and Carol Woodward.

The first action that the Fellows Committee took was to agree that it was too small a body to make the decision on whether or not SIAM should have a Fellows Program. The committee decided to craft the best program it could and to recommend to the SIAM Council and Board that the proposal, suitably amended by the Council and Board, be sent to the membership for a vote.

After ten months of comparative research into other Fellows programs and deliberation about what kind of program would suit the breadth of SIAM membership, this committee reported back to the Council at its July, 2007 meeting.

The Council and Board both agreed to forward a program to the membership for a vote based on the committee's draft.

Q. What were the main arguments in favor of a Fellows program?

- There are many exceptionally talented people in our community who are unlikely to be honored by national or international prizes. A Fellows program brings prestige and recognition to a relatively large percentage of members of the profession, far more than currently recognized by SIAM prizes.
- The possibility of serving one's community in high level institutional or government positions is aided by being a fellow of one's disciplinary society. For example, when seeking nominations, the Air Force Science Advisory Board wants to know whether the candidate is a fellow. The absence of such recognition within the applied mathematics and computational science community may limit us from influencing these high level discussions.
- Having a Fellows program will enhance the ability of the applied mathematics and computational sciences community to elect individuals to prestigious bodies like the National Academies.
- Fellows may be able to have more influence within their own institution than applied mathematicians otherwise have.
- Societies in many disciplines of science and engineering have Fellows programs, including ACM (computer science), APS (physics), ASA (statistics), INFORMS (operations research), electrical engineering (IEEE), mechanical engineering (ASME), not to mention many organizations based outside the US.
- Listing SIAM Fellows online, perhaps with more than just names, gives a nice way to showcase the human face of SIAM.
- A Fellows program is a valuable service that SIAM can offer its members.
- Some Fellows may feel an enhanced commitment to SIAM and more willingness to serve in a leadership role, increasing the pool of candidates for positions and committees.

Q. What were the main arguments against a Fellows program?

- There is a perception that SIAM is generally welcoming and egalitarian. Having a Fellows program may damage this spirit or be divisive. It could undo the sense that

SIAM, and mathematics in general, have a special ethos rather different from that of other scientific fields.

- Members of SIAM from industry or government labs may find it harder to be selected as Fellows due to different job description, less publication, etc. This could increase the feeling some have of being "second class citizens" in SIAM.
- A Selection Committee of 12 members may be unable to properly judge and compare the wide variety of differing accomplishments of our diverse membership.
- The existence of Fellows may be divisive within some institutions.
- The term "Fellows" may carry different connotations in other countries outside of the United States. In some nations, special honorary designations carry much more authority with them than they do in the U.S. There may be a perception that we are giving greater power to our group of Fellows than is intended.
- A Fellows program may recognize primarily the same people who are selected for other awards and those already active in running SIAM and its journals.
- A Fellows program could be time-consuming to implement and there will be costs to SIAM in administering such a program.
- Some of those not selected as Fellows may feel a decreased loyalty to SIAM and be less willing to serve the society, decreasing the pool of candidates for positions and committees.

Q. Do other societies in the mathematical sciences have Fellows programs?

The ASA, ACM, and INFORMS all have Fellows programs.

The AMS currently has no Fellows program. A Fellows program was voted on in 2006 and in 2008 did not quite receive the 2/3 vote required to mandate establishing a Fellows program.

Q. How will Fellows be selected?

This is spelled out in detail in the program.

Q. Is excellence in research the only criterion?

Research excellence is one criterion for selection, but it is not meant to be the only one. The Fellows program is also intended to recognize excellence in industrial work (that might or might not involve traditional research), excellence in educational activities that reach a broad audience, or other forms of excellence directly related to the goals of SIAM.

Q. Why don't all current Fellows vote to select new Fellows?

Some societies have an alternative model in which a committee filters the nominees and then all existing Fellows make the final selection by some election procedure. There are two major difficulties with this process. First, it is cumbersome and goes against efficiency, since a process must be put in place whereby (several hundred) Fellows have access to [parts of] the nomination material. Second, most Fellows will not spend much time going through the nomination materials, and selection will most likely be based more on fame and popularity than accomplishment.

The SIAM Fellows Program will have a single Selection Committee of 12 current Fellows who will select the Fellows. This is more efficient and easier to manage. Moreover, the Selection Committee will be aware of the overall goals of the program and able to take a global view of the set of new Fellows selected each year. In particular, this committee can pay careful attention to the non-academic membership of SIAM.

Q. How will industrial or government members be judged relative to academic members?

It is recognized that excellence in an industrial or laboratory setting is often judged by a very different set of criteria than in academics. This is one reason for having the selection of Fellows done by a committee of 12 rather than by election. This Selection Committee will carefully read all nomination materials and be aware of the differing criteria.

As stated in the program, "the Major Awards Committee, when appointing the Fellows Selection Committee, and the Fellows Selection Committee, when evaluating nominees, will give careful attention to the non-academic membership of SIAM."

Q. How many new Fellows will be selected each year?

After start-up, a certain number of new Fellows will be appointed each year. The target number will be a specified percentage of the number of regular SIAM members [regular members consist of all non-student members]. The percentage starts at 0.45% the first year and will decrease by 0.015% each year during a 10 year transitional period, after which a fixed steady state percentage (0.3% of regular SIAM members) will be used in subsequent years.

The actual number of new Fellows will depend on the size of the membership. The number of regular members of SIAM has been roughly 7400 for the past several years. Assuming this remains constant, the number of individuals selected in each of the first year would be 33, decreasing to a steady state value of 22 per year after 10 years.

Q. How many Fellows can SIAM expect to have in steady state?

The start-up algorithm is expected to generate roughly 163 Fellows and during the 10 year transition period another 283 Fellows would be selected (assuming constant membership numbers), for a total of 446, probably less after accounting for mortality, about 6% of regular SIAM members (4% of all members if student members are

included). It is expected that the number will continue to grow for another 10 years. In the long term steady state, if one assumes a Fellow lives for about 25 years after selection, and 22 Fellows are selected each year, there will be roughly  $550 = 25 \times 22$  Fellows, which is roughly 7.4% of the regular membership (5% of all members).

**Q. How does the program compare to Fellows programs in other societies?**

The Fellows Committee reviewed the Fellows Programs of 12 other societies in the process of developing the SIAM program.

Here are a few numbers regarding the size of other programs [Note: SIAM plans to select about 0.3% of regular members each year in steady state, which corresponds to about 0.2% of *all* members of SIAM (including student members).]

- American Physical Society: selects 0.5% of all members each year.
- American Statistical Society: selects 0.33% of all members each year.
- Association for Computing Machinery: A limit of 1% of membership may be Fellows.
- INFORMS: selects 0.15% of all members each year.
- American Meteorological Society: selects 0.2% of all members each year.
- American Mathematical Society: Currently has no Fellows program. The proposals voted on in 2006 and 2008 would have put the cap at 5% of all members.

**Q. What was the outcome of the Fellows program vote?**

The 2008 SIAM election included the option to vote for or against the proposed Fellow Program. The creation of a SIAM Fellows Program was approved by 63.5% of those who voted (26.3% of SIAM's eligible members voted in the election).