

## **SIAM Activity Group Optimization Charter Renewal Application**

This CHARTER RENEWAL APPLICATION applies to the SIAM Activity Group on Optimization. The SIAG/OPT was originally formed under the aegis of SIAM on October 27, 1985 by the SIAM Board of Trustees and electronically by the SIAM Council in January 2000. Its initial operating period began January 1, 1986 and ending December 31, 1988. Its charter has been renewed by the Council and Board 9 (nine) times thereafter.

This SIAG has 1,091 members, including 538 student members, as of December 31, 2015.

According to its Rules of Procedure, the objective(s) of the SIAG are to provide an environment for interaction between applied mathematicians, computer scientists, engineers, scientists, and others interested in optimization. The SIAG aims to foster the development of methods, software, and theory for optimization, and to foster the use of optimization techniques in scientific and industrial applications. Within the framework of SIAM, the SIAG will conduct activities that implement its purposes

Its purposed functions were:

The SIAG on OPT will organize activities in Optimization. The SIAG is expected to:

1. Organize minisymposia at the SIAM Annual Meeting in years where there is no SIAG conference.
2. Organize a track of at least six minisymposia at the SIAM Annual Meeting at least once every five years. The VP for Programs and the VP at Large will coordinate the scheduling with the SIAG Chairs.
3. Organize a triennial SIAM Conference on Optimization. The SIAG will consider dovetailing specialized workshops and conferences with the SIAM Annual Meeting or other SIAG conferences. The co-Chairs of the Conference Organizing Committee shall be the Program Director and the Chair of the SIAG or their designees. The organizing committee must be approved by the VP for Programs at least 16 months before the conference.
4. With the approval of the SIAM Program Committee, the SIAG may organize special sessions at SIAM meetings, and conduct special one- or two-day meetings immediately before or after a regular SIAM meeting. Other SIAG meetings may be organized only with the approval of the SIAM President and Vice President for Programs.
5. Awarding of the triennial SIAG/Optimization prize, established in 1992.
6. Maintain a SIAG wiki site [http://wiki.siam.org/siag-op/index.php/Main\\_Page](http://wiki.siam.org/siag-op/index.php/Main_Page) or produce a newsletter for SIAG members.

The SIAG will organize these and other activities in order to (1) promote interaction between applied mathematicians, computer scientists, engineers, scientists, and others interested in optimization; (2) keep SIAM membership up to date on developments in optimization; and (3) facilitate development and application of optimization methods, software, and theory.

SIAG meetings, workshops, and conferences may be organized only with the approval of the SIAM President and the SIAM Vice President for Programs.

The SIAG has complemented SIAM's activities and supported its proposed functions. The answers to the questions below indicate how this was accomplished and what the officers propose as the future directions for the SIAG.

1. List all current officers of the activity group (including advisory board, if relevant).

Chair: Juan Meza

Vice Chair: Martine Labbe

Program Director: Michael Friedlander

Secretary/Treasurer: Kim Chuan Toh

Newsletter Editors: Jennifer Erway and Stefan Wild

2. How is the field covered by the activity group doing? Is it growing, is the focus shifting? What have been the significant advances over the last three years?

The field of optimization remains one of the most important areas with overlap to many other scientific fields both within the applied mathematics community and with other scientific disciplines. It is difficult to pinpoint any one significant advance, but rather it is fairer to say that optimization in its many varied forms (nonlinear, non-smooth, convex, combinatorial, first-order, derivative-free, etc.) is now becoming an integral part of other disciplines.

3. How is the activity group doing? Is it remaining vibrant? Is the size of the SIAG stable or increasing? How is the SIAG keeping up with the changes in the field? How are the broader interests of SIAM reflected in the activities of the SIAG?

The SIAG/OPT is the third largest in SIAM as of December 2015 with 1091 members, which includes 553 regular members, and 538 student members. This constitutes a 13.5% increase over 2014 and partially reverses a 3-year decline starting in 2011. Although the number of nonstudent members has declined slightly, the student numbers have increased by almost 40%. These numbers are reassuring and we hope to capitalize on this trend to attract more regular members. The field of optimization is closely related to many other areas within SIAM such as computational science and engineering, control and systems theory, data mining and analytics, and imaging science and uncertainty quantification.

4. Please list conferences/workshops the activity group has sponsored or co-sponsored over the past three years, and give a brief (one sentence or phrase) indication of the success or problems with each.

The SIAG OPT organizes the triennial conference on Optimization. This list of conferences may be found at: <http://www.siam.org/meeting/archive.php.opt>

The SIAM Conference on Optimization in 2014 had 632 attendees including 200 students attending. The meeting was the largest we've had and by all accounts appeared to be quite successful. Roughly half of the attendees were from the United States and sizable contingents came from Germany (81), Canada (43), In addition to the talks, the conference hosted minitutorials by Monique Laurent and Didier Henrion, and by Jeff Linderoth, Sven Leyffer, and James Luedtke. The minisymposia are all available online at <http://goo.gl/kwfrna>.

Although we are not technically sponsoring or co-sponsoring the 2016–17 SAMSI Research Program on Optimization, we have been cooperating with the organizers and have helped to advertise the program through our Views and News newsletter. The program will focus on topics in optimization including: optimization for large-scale statistical analyses; statistical approaches for numerical solution of large-scale optimization problems; and applications of optimization.

5. Please indicate the number of minisymposia directly organized by the activity group at the last two SIAM annual meetings. When did the SIAG last organize a track at an annual meeting or meet jointly with the SIAM Annual Meeting?

Due to the timing of ICIAM, SIAM did not hold an annual meeting in 2015 and as such the SIAG did not organize any minisymposia. The SIAG last organized a track at AN10, with minisymposia on first-derivative methods for convex optimization, on mixed-integer programming, and on matrix rank minimization.

6. Please indicate other activities sponsored by the activity group, to include newsletters, prizes and web sites. Have each of these been active and successful?

With the appointment of two new editors, the SIAG Newsletter, Views and News, was revitalized and quickly produced two newsletters in 2015. The first highlighted some of the events at the last conference in San Diego that attracted over 650 researchers. The second newsletter highlighted two hot topics, exascale challenges in optimization and packing problems. The SIAM Prize in Optimization committee was recently approved and it is now in the process of selecting the next prize to be awarded at the next SIAG/OPT conference in Vancouver, May 2017.

At the 2014 conference the SIAM Optimization Prize was awarded to Yinyu Ye.

7. What activities are planned and proposed for the next period of the charter? Please describe scheduled and suggested future activities in detail.

The main activities for this year will be in preparation for the next triennial conference in Vancouver.

8. How can SIAM help the activity group achieve its goals?

SIAM provides excellent logistical support for the activity group and handles the non-programmatic elements of the optimization conferences. It also hosts the activity group website and wiki.

9. How can the activity group help SIAM in its general role of promoting optimization?

The SIAG promotes SIAM membership at the business meeting at the SIAM Optimization Conference and through its website and wiki. We encourage publication in SIOPT, which is one of the two leading journals in optimization. We will work on organizing minisymposia at the next SIAM annual meeting. In addition to the SIAG prize, SIAG/OPT members are active in the solicitation of nominations and the selection for the SIAM/Mathematical Optimization prizes, the George B. Dantzig Prize and the Lagrange Prize in Continuous Optimization.

This SIAG requests that the SIAM Council and Board of Trustees renew its charter for a three-year operating period beginning January 1, 2017.

Signed  
[SIAG Chair]  
[Date]