

CHARTER RENEWAL APPLICATION SIAM Activity Group on Optimization

This CHARTER RENEWAL APPLICATION applies to the SIAM Activity Group on Optimization. The SIAM Activity Group (or SIAG) to which this renewal applies 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 seven times thereafter, and is chartered to operate until December 31, 2009. This SIAG had 1138 members as of December 31, 2008.

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.

Its purposed functions are 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.

Other activities can include:

- 3) Organize a triennial SIAM Conference on optimization.
- 4) Organize special sessions at SIAM meetings, and conduct special one- or two-day meetings immediately before or after a regular SIAM meeting.
- 5) Maintain a web page or produce a newsletter for SIAG members.

The SIAM also awards the SIAG/OPT prize, which was established in 1992.

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The SIAG has complemented SIAM's activities and supported its proposed functions. The answers to the questions below were developed by the SIAG/OPT Committee:

Chair:	Michael C. Ferris
Vice Chair:	Yinyu Ye
Program Director:	Stephen Vavasis
Secretary/Treasurer:	S. Thomas McCormick
Newsletter Editor:	Sven Leyffer

and indicate how this was accomplished and what the officers propose as the future directions for the SIAG.

- 1 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 [two/three] years?

Optimization is a healthy and active field with an increasing number of application domains relying heavily on our technology. The activity group is strong and continues to grow (517 in 2002, 748 in 2005, 1138 in 2008). Our 2008 SIAM Optimization Meeting was the largest ever with 569 attendees. Some significant advances in the past few years include:

- The emergence of compressive sensing
- A number of advances in the efficiency of semidefinite solvers to make SDP more tractable for large problems

- Proximal methods for nonsmooth convex programming
- Optimization of PDE-based models is expanding dramatically
- Deeper understanding of stochastic optimization and applications in finance

Optimization Online is a repository of eprints about optimization (sponsored by the Mathematical Programming Society) and related topics for the optimization community, started in August 2000. Optimization Online: <http://www.optimization-online.org>.

2. 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?

- SIAG/OPT is a vibrant group with a stable membership. In recent years the SIAG's popular "Views and News" newsletter has published tutorial/survey articles on numerous topics of current research interest. The SIAG promotes SIAM's broader interests by organizing joint mini-symposia with other SIAGs as well as sessions at other meeting.
- We are working with the SIAM Annual Meeting Program Committee to find state-of-the-art speakers in optimization for this meeting.
- The previous board helped organize a new journal, Math Programming C on computational optimization.

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

- Our main conference is the SIAM Optimization Conference, last held in 2008 (with 569 attendees, the most ever) and to be next held in 2011.
- We have not organized any other workshops recently. The SIAM Combinatorial Scientific Computing conference (CSC) would like to hold their 2011 meeting in conjunction with ours, and we are working on this.

4. Please indicate the number of minisymposia directly organized by the activity group at the last [two/three] SIAM Annual Meetings. When did the SIAG last organize a track of minisymposia at an annual meeting?

- We have sponsored a minisymposium on optimization at the SIAM Linear Algebra Meeting of 2009 and plan to sponsor others.
- Sponsored 11 minisymposia at the 2006 Annual Meeting, none in 2007 at ICIAM, none in 2008 (our meeting) and 1 at the Annual Meeting in 2009.
- Steve Vavasis is working on the 2010 Annual Meeting but we don't have numbers yet.

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

- Our newsletter (Views and News) is published 2-3 times per year and is widely read, as far as we can tell. It is edited by Sven Leyffer and available on the web at http://wiki.mcs.anl.gov/NEOS/index.php/SIAG/Optimization_View_and_News.
- Our prize is given every three years (at the SIAM Optimization meeting). The last prize was given in 2008.

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

- Our most important activity is the Optimization meeting held once every three years. Currently looking at finalizing details for the 2011 meeting, with probable location being Darmstadt, Germany.
- We plan to continue the other activities, including the prize and newsletter
- We would like to become more active in sponsoring minisymposia at other SIAM conferences.

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

- We believe SIAM has been very supportive of our group.

SIAM Council
July 9, 2009

Agenda Item 8(g)

Board of Trustees
Regular Session
July 11, 2009

Agenda Item 9(g)

- Continue to provide professional help with web design and our startup of a wiki.

8. How can the activity group help SIAM in its general role of promoting applied mathematics and computational science?

- There are many problems in industry and government that are currently solved using ad hoc methods but could be much better solved using optimization. Perhaps we could help SIAM by collecting 'success stories' of this nature.

This SIAG requests that the SIAM Council and Board of Trustees renew its charter for a three-year operating period beginning January 1, 2010.

Signed

Michael C. Ferris

Michael C. Ferris
June 19, 2009
