

CHARTER RENEWAL APPLICATION  
SIAM Activity Group on Analysis of Partial Differential Equations (APDE)

This CHARTER RENEWAL APPLICATION applies to the SIAM Activity Group on Analysis of Partial Differential Equations (APDE). The SIAM Activity Group (or SIAG) to which this renewal applies was originally formed under the aegis of SIAM on March 26, 2003 by the SIAM Council and December 7, 2002 by the SIAM Board of Trustees with its initial operating period beginning April 1, 2003 and ending March 31, 2005. Its charter has been renewed by the Council and Board once thereafter and is chartered to operate until December 31, 2006. This SIAG had 269 members as of December 31, 2005.

According to its Rules of Procedure, the objective(s) of the SIAG are to foster activity in the analysis of partial differential equations (PDE) and to enhance communication between analysts, computational scientists and the broad PDE community. Its goals are:

- To provide a forum where researchers in the area, theoretical and applied, can meet;
- To be an intellectual home for researchers in the analysis of PDE;
- To increase conference activity in PDE;
- To enhance connections between the applications and analysis communities.

Within the framework of SIAM, the SIAG will conduct activities that implement its purposes.

Its purposed functions were to undertake a number of activities, including:

- Organize minisymposia at the SIAM Annual Meeting in years where there is no SIAG conference. At least once every five years either organize a track of at least six minisymposia at the SIAM Annual Meeting or have an activity group meeting held jointly with the annual meeting. The VP for Programs and the VP at Large will coordinate the scheduling with the SIAG chair.

Other activities can include:

Organize a biennial SIAM Conference on PDE. Because of connections between PDE and the topics of many of the other SIAGs, the SIAG/APDE will also solicit opportunities to run joint meetings with other SIAGs and with other periodic SIAM meetings (for example, Combustion, Materials Science or the SIAG on Nonlinear Waves and Coherent Structures). The chair of the conference organizing committee shall be either the program director or the chairperson of the SIAG or their designee. The organizing committee must be approved by the VP for Programs at least 16 months before the conference.

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.

Disseminate information. The SIAG will publish a newsletter and maintain a website to facilitate the exchange of information among its members and other interested parties.

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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. 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 multi-dimensional conservation laws is seeing a new resurgence and that is reflected in the talks given at the last APDE meeting in Houston (Dec. 2003), and to be given at the next meeting in Boston (July 2006). The SIAG in APDE is providing an excellent venue for the general APDE audience to become aware that the field is accessible and interesting things are happening. Other areas of PDE such

as variational methods and applications are well represented in the SIAG, and are reflected in the topics and minisymposia to be covered at the Boston meeting.

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?

The SIAG is still developing activities, and this should continue. New in the last year are a best paper prize (first award to be made at the APDE meeting in Boston in July, 2006), one newsletter, and a new web site for the SIAG, with information about conferences, books, etc. The APDE SIAG serves a section of the SIAM membership that has not had a clear role in SIAM in the last decade or so. Bringing this community into the mainstream of SIAM activities will benefit broader SIAM interests in connecting with areas of mathematics that interface with applications. As of December, 2005, the SIAG had 269 members, including 113 (42%) student members. This is the first significant membership number, as it follows the first APDE conference in December 2004.

3. 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.

SIAM Conference on Analysis of PDE, Houston, Texas, December 6-8, 2004. Conference had 168 paid attendees. The conference was a successful celebration of the beginning of the SIAG, with many ideas about how the SIAG could develop, and how the APDE community could better organize itself within SIAM.

3. 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 tract of minisymposia at an annual meeting?

The SIAG has not organized a minisymposia track at an annual meeting. However, there were several APDE related minisymposia at the New Orleans meeting, July 2005. The three-part minisymposium on Dynamics of Thin Liquid Films was sponsored by the APDE SIAG.

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

As indicated above, the newsletter, best paper prize and web site were started in 2005. They are active components of the SIAG. Another new feature is two short courses at the SIAG 2006 meeting in Boston. They are:

Constantine M. Dafermos, Brown University: Conservation Laws in Continuum Physics

Lawrence C. Evans, University of California, Berkeley: Recent Developments in Weak Convergence Methods for Nonlinear PDE

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

The newsletter should be put on a more regular schedule. The intention is that the secretary should plan to put out at least two newsletters each year.

Future chairs of the SIAG should contact Annual meeting organizers to ask about sponsorship of minisymposia by the APDE SIAG, and should use the newsletter or email to solicit minisymposia from the membership.

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

Continued communication with the SIAM membership to emphasize the benefits and low cost of joining the APDE SIAG.

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

The APDE SIAG does this by remaining an active organization, showcasing exciting new developments in the field. Awarding prizes is an important activity of our professional organization, and the APDE prize will play its part in promoting SIAM interests.

This SIAG requests that the SIAM Council and Board of Trustees renew its charter for a two-year operating period beginning January 1, 2007.

Signed  
Michael Shearer

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## ***Analysis of Partial Differential Equations***

The Activity Group on Analysis of Partial Differential Equations fosters activity in the analysis of partial differential equations (PDE) and enhances communication between analysts, computational scientists and the broad PDE community. Its goals are to provide a forum where theoretical and applied researchers in the area can meet, to be an intellectual home for researchers in the analysis of PDE, to increase conference activity in PDE, and to enhance connections between SIAM and the mathematics community.

Chair: Michael Shearer, 1/1/2005 - 12/21/2006

Vice Chair: Mary Pugh, 1/1/05 - 12/31/006

Program Director: Gui-Qiang G. Chen, 1/1/05 - 12/31/06

Secretary: Marshall Slemrod, 1/1/05 - 12/31/06