

Charter Renewal Application for the SIAM Activity Group on Geosciences

This CHARTER RENEWAL APPLICATION applies to the SIAM Activity Group on Geosciences. The SIAG/GS was originally formed under the aegis of SIAM on July 1991 by the SIAM Council and July 1991 by the SIAM Board of Trustees with its initial operating period beginning January 1, 1992 and ending December 31, 1994. Its charter has been renewed by the Council and Board 6 (six) times thereafter. This SIAG had 501 members, including 201 student members, as of 12/31/2011.

According to its Rules of Procedure, the objective(s) of the SIAM Activity Group on Geosciences is to provide an established forum for interdisciplinary interactions among mathematicians, engineers, chemists, physicists, and other scientists having special interests in flow in porous media and geophysics.

Its purposed functions were:

1. The SIAG will organize activities, including conferences and publications, to promote the interaction of practitioners and researchers and to keep the SIAM membership up to date on trends in geosciences.
2. The SIAG shall not present awards or otherwise recognize scientific achievement, professional service, or the like without prior approval by both the SIAM Major Awards Committee and the SIAM Council of the award criteria, the method of selection of recipient(s), the nature of the award, and all other aspects, if any, of each such award must have the prior approval of the SIAM Board of Trustees.

Other activities may include:

3. Organize minisymposia at the SIAM Annual Meeting in years where there is no SIAG conference.
4. 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.
5. Organize a biennial SIAM Conference on Geosciences. The SIAG will consider dovetailing specialized workshops and conferences with the SIAM Annual meeting or other SIAG conferences. 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.
6. 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.
7. Award the biennial SIAG/GS Career Prize and the SIAG/GS Junior Scientist Prize.
8. Maintain a wiki site for the activity group http://wiki.siam.org/siag-gs/index.php/Main_Page

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).

Malgorzata Peszynska (Chair), Ivan Yotov (Vice-Chair), Michel Kern (Program Chair), Jennifer Niessner (Secretary) . All were elected for the period January 2011-December 2012.

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 two years?

The field of mathematical and computational geosciences is evolving due to i) new challenges from applications disciplines as well as ii) new mathematical and computational techniques that are developed to handle them. The new challenges and opportunities arise in modeling of Climate, Atmosphere, and Ocean, as well as Earth processes. These include regional and large-scale weather and climate prediction, sea-ice and arctic ice modeling, ocean circulation and coastal and tsunami models, earthquake and subsurface reservoir modeling, carbon dioxide storage and sequestration, and geophysical techniques characterizing the subsurface and mantle. The models share the difficulties associated with multiple scales, and the need to adapt existing techniques to new computational technologies such as GPUs. Throughout the mathematical geosciences there is a need to improve the existing models and to develop new mathematical and numerical techniques for handling enormous amounts of data and information that is becoming available from various observatories and experiments. The various advances in the field were reported at the SIAM-GS11 and included progress in such diverse fields as better and realistic models of tsunamis, coupled multiscale models of flow and transport coupled with geomechanics and surface flow and their large scale computational implementations, as well as global imaging and geophysics simulation methods for the entire earth.

The SIAG-GS sponsored and the officers of the SIAG organized a Forward Looking Workshop on Mathematical Geosciences in September 2011 which was devoted to a discussion of where the field is going.

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 activity group is doing very well and the members are connected well to other SIAM groups as well as other professional societies with similar focus.

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.

4A) The SIAG GS organizes the biennial conference on Geosciences. This list of conferences may be found at: <http://www.siam.org/meetings/archives.php#GS>.

The SIAM Conference on Geosciences was held in Long Beach, CA on March 21-24, 2011 and had 410 attendees including 300 paid non students and 85 paid students attending.

4B) Additionally, the group sponsored the Forward Looking Workshop on Mathematical Geosciences convened in Crystal City, Washington, D.C. on Sept. 16-17, 2011 http://wiki.siam.org/siaggs/index.php/Forward_Looking_Workshop

4C) Also, the first G2S3 school is organized by the members of SIAG-GS on the topics in the core of SIAG's activities on "Simulation and Supercomputing in the Geosciences". It will be held in Monterey, California, July 29 - August 10, 2012.

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 of minisymposia at an annual meeting or meet jointly with the SIAM Annual Meeting?

GS: Track at AN08

There were minisymposia at SIAM Annual 2010 MS5, MS25, MS25-37-50-6, MS 106, MS107. For SIAM 2012 several Geoscience-related minisymposia were proposed but the program has not been finalized yet at the time of writing this document.

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?

There is a wiki site used as a repository of information. We send a newsletter (approximately quarterly) with information about upcoming conferences and other items of interest. In addition, timely messages are forwarded at once to members; these average a few a month.

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

7A) The SIAM Conference on Geosciences will be held in June 17-20, 2013 Centro Congressi Padova, Padova, Italy, and its conference Chairs are Michel Kern and Mario Putti. The Conference is co-sponsored by "Mathematics and Planet Earth 2013" (MPE2013).

7B) Additional workshops and activities sponsored by our SIAG-GS may be organized in connection with MPE2013.

7C) SIAM Conference on Geosciences will likely be held in Spring/Summer 2015 in US but it is too early to know details.

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

Continue to support our activities and members in particular students.

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

Keep their membership and its activities up.

This SIAG requests that the SIAM Council and Board of Trustees renew its charter for a two year operating period beginning January 1, 2013.

Malgorzata Peszynska, SIAG/GS Chair
April 24, 2012