

### **Guidelines for the Renewal or Termination of SIAGs**

When a SIAG is up for renewal, the Charter Renewal Application asks SIAG officers to provide detailed information about the SIAG's activities during its present term as well as specific plans for future activities. A SIAG that has not been active during its present term will not be automatically renewed. Activities may be of various natures according to the SIAG's interests; examples include organization of conferences, a regular newsletter, SIAG participation in SIAM annual meetings, an up-to-date Web portal, etc. Membership is also a clear indication of the health of a SIAG. If a SIAG's membership is dropping, this may indicate that renewal is not appropriate.

SIAG leaders are expected to respond to questions from the SIAM office in a timely way, normally by email, and to organize regular elections following the SIAG Rules of Procedure.

SIAG renewals are reviewed by both the SIAM Council and Board; the renewals take place effective the beginning of a calendar year. Requests for renewal are due no later than June 1 of the previous year so that they may be considered by the Council and Board at their summer meetings. If the Council or Board decides that renewal of the SIAG may not be appropriate, the SIAG officers will be notified during the summer so that they have the opportunity to provide more information to the SIAM office during the fall. This information will be due no later than November 1. The Council will then be polled by email, and if the Council approves renewal, the Board will make a final decision regarding renewal at its December meeting.

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### **Pro Forma CHARTER RENEWAL APPLICATION**

This CHARTER RENEWAL APPLICATION applies to the SIAM Activity Group on Geosciences. The SIAM Activity Group (or SIAG) to which this renewal applies 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 four times thereafter. This SIAG had 264 members as of January 1, 2006.

According to its Rules of Procedure, the objective(s) of the SIAG are 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 to 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.

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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?

Among the many disciplines the members of the Activity Group on Geosciences work in, the most dynamic area is the area of porous media, where members are working with petroleum engineers (enhanced oil recovery), biologists (bio-remediation of groundwater, bio-tissue which are porous in nature), chemists

(reactive transport), and mechanical engineers (rock deformation). Mathematically inverse problems and problems involving uncertainty are probably the areas of most activity. Multi-physics applications, e.g., coupling of surface and subsurface flows, have been an area of increased activity. The increasing complexity of physical problems and the need for higher resolution data-driven simulations have led to even more active development of accurate discretizations and efficient dynamic algorithms for massively parallel computers. Areas in which this SIAG is making a focused effort to improve activity involvement include: seismic modeling, ocean modeling, and atmospheric modeling.

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?

This SIAG is relatively stable. The primary interaction and appreciation for participation in this SIAG is the bi-annual meeting. There were 255 registered people at the 2003 meeting and 270 registered at the 2005 meeting. One consistent comment we received in the last two meetings has been compliments on the quality of talks. The number of sessions in particular areas has been representative of the level of research activity in that area (e.g. decreasing number of sessions on bio-remediation, increasing number of sessions on inverse problems and oil recovery). We held the 2005 meeting in France to encourage European participation, which was appreciated by the Europeans; although we had a decrease in participation from the U.S., this was compensated by an increase in participations from Europe. Where we need to improve is attracting members/participants in seismic modeling (wave propagation/ inversion problems), ocean modeling, atmospheric modeling, and participants from industry. For the 2007 meeting we have an ocean modeler on the organizing committee, made a concerted effort to invite persons in seismic modeling as plenary speakers and to organize sessions, and we are holding the meeting in Santa Fe, NM, which is close to Houston where there are numerous industrial researchers working in oil reservoir modeling.

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 Mathematical and Computational Issues in the Geosciences (GS05), co-sponsored by INRI, held in Avignon, France, June 7-10, 2005. Had 270 attendees.

SIAM Conference on Mathematical and Computational Issues in the Geosciences (GS03), Austin Texas, March 17-20, 2003. Had 258 attendees.

4. 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?

2005: None (held within a month of the SIAG meeting)

2004: MS27 (3 sessions), MS29 (2 sessions), MS53, MS55

Last track of minisymposia organized at an annual meeting: Unknown.

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?

Most interactions occur at our biannual meetings. Currently there is no newsletter. The web site is up-to date and standard.

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

2007 biannual meeting in March of 2007 in Santa Fe New Mexico.

Submitting articles for SIAM news.

Historically SIAM has limited number of candidates in the elections – we hope to make this process more inclusive and open and (by our bylaws) have at least 2 candidates for each office.

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

SIAM has been extremely helpful with the administration of organizing meetings, keeping this SIAG on track as far as keeping the charter and bylaws updated.

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

Feedback from new participants at our bi-annual meetings overwhelmingly complement the quality of the talks. Bringing more diverse participants to our bi-annual meetings, especially persons who are in other fields and tend to be more theoretical, become exposed to SIAM, and this should increase the awareness and interest in SIAM.

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  
Lynn S. Bennethum  
June 23, 2007

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