

SIAM Activity Group Geosciences Charter Renewal Application

This CHARTER RENEWAL applies to the SIAM Activity Group on Geosciences (SIAG/GS). The SIAG/GS was originally formed under the aegis of SIAM in July 1991 by the SIAM Council and 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 thirteen times thereafter.

This SIAG has 396 members, including 113 student members, as of December 31, 2021.

According to its Rules of Procedure, the objective 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. Organize minisymposia at the SIAM Annual Meeting and ICIAM in years where there is no SIAG conference.
2. At least once every seven 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.
3. Organize a biennial SIAM Conference on the Mathematical and Computational Issues in the 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.
4. With the approval of the SIAM Program Committee, the SIAG may organize special sessions at SIAM meetings. Other SIAG meetings may be organized only with the approval of the SIAM president and 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.

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

Chair: Inga Berre

Vice-Chair: Vladimir Druskin

Program Director: Maša Prodanović

Secretary: Chris Kees

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 years?*

Application of mathematics and computational science in geoscience is a growing field due to needs to understand and predict complex processes related to the earth, its oceans and atmosphere and our interference with the natural systems. A trend that can be seen is the growth of machine learning technology across all applications. In the SIAM Geosciences conferences, the focus on coupled multiphysics processes and the impact of structural features, e.g., fractures and interfaces, are also areas of growing interest.

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 number of nonstudent members in the activity group has been stable around 300 over the last 10 years, with 283 members in 2021. While the membership has been stable, the number of student members has experienced more variation over the same period and decreased from 182 members in 2019 to 113 members in 2021. The lack of physical meetings during the pandemic has made recruiting new members more difficult.

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

In June 2021, the SIAM Geosciences conference was held in a virtual format at Politecnico di Milano, Italy. There were 644 attendees to the conference, which is an increase of 35% of the largest number of attendees at a previous conference (2017). The feedback from the participants who responded to a survey on the conference was very positive. For example, 84% agreed to the statement that the “technical program was excellent,” and only 2% disagreed to the same statement.

The next SIAM Geosciences conference will take place in Bergen, Norway, organized by the University of Bergen.

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

Because of the number of Activity Groups, the current guidelines are that an Activity Group should organize a track about every seven (7) Annual Meetings or meet jointly with the Annual Meeting within a seven (7) meeting period.

The SIAG/GS had a track with SIAM Annual 2018, held in Portland, Oregon, with one invited (plenary) speaker and eight minisymposia. The 2019 SIAM Annual meeting was held jointly with

ICIAM 2019.

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?*

Monthly SIAM Geosciences Webinars were initiated in 2021 and started in the fall of the same year. The talks are posted on the SIAM YouTube channel (<https://www.youtube.com/user/SIAMConnects>). SIAM Activity Group Webinars generally happen on the second Thursday of the month @ 11:00 Central U.S./ noon Eastern U.S./ 18:00 Central European time. The webinars are on Zoom (administered by the SIAM office) and are recorded and posted on SIAM YouTube Channel. The schedule for 2021-22 has been:

- Dr. Mikhail Zaslavsky on May 12, 2022 (upcoming)
- Dr. Clint Dawson on Apr 7, 2022.
- Dr. Maïke Sonnewald on Mar 10, 2022.
- Prof. Iuliu Sorin Pop on Feb 10, 2022.
- Prof. Knut-Andreas Lie on Dec 9, 2021.
- Prof. Beatrice Riviere on Nov 11, 2021.
- Prof. Marc Hesse on Oct 14, 2021.

The activity group maintains a wiki website (<http://wiki.siam.org/siag-gs>). Information is regularly sent via the SIAM Engage platform to the activity group members on, for example, job openings, summer schools, and meetings. There are two prizes given at each of the SIAM Geosciences meetings: a Career Prize and an Early Career Prize.

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

The SIAM Geosciences Conference 2023 will be held in June in Bergen, Norway. The webinars are scheduled to be held 3-4 times every semester, on the second Thursday every month. Establishing SIAG/GS Social Media accounts for the advertisement of SIAG/GS activities is suggested as soon as this becomes feasible.

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

SIAG/GS has valued the support of SIAM in running the SIAM Geosciences webinars and on the organization of SIAM GS conferences. During the last period, SIAG/GS has contacted SIAM on the need for social media accounts for the activity group as we see this as an important channel for communication with members and other parties interested in the group's activities. The SIAG/GS endorse that SIAM have started a process to get a policy for social media accounts for all the activity groups in place and look forward to having this established. Expansion and specialization of SIAM career services to the subgroup of geosciences students would benefit the SIAG/GS activity group.

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

The main priority of the SIAG/GS is to promote the role of mathematics and computational science in the geosciences. The SIAG also prioritizes organizing the high-quality biannual SIAM Geosciences conferences, with diverse participation of researchers at different career levels from universities, research institutes, government organizations, and industry.

This SIAG/GS requests that the SIAM Council and Board of Trustees renew its charter for a two-year operating period beginning January 1, 2023.

Signed,

A handwritten signature in blue ink, appearing to read "Inga Berre". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Inga Berre, SIAG/GS Chair

4 May 2022