

# A Proposal for Continuation of the Southeast Geometry Conference, 2006-2008

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## 1 Objectives and Justification

The purpose of the Southeast Geometry Conference (SEGC) is to bring together mathematicians working in geometry at institutions in the southeastern U.S. The conference, now in its sixteenth year, has involved speakers and participants from a broad spectrum of institutions: Group I and Group II research universities (e.g., Duke, University of Georgia, NC State), prominent regional universities (e.g., Clemson University, University of Southern Mississippi), master's degree granting institutions (e.g., College of Charleston), and selective liberal arts colleges (e.g., Agnes Scott College, St. Mary's College of Maryland).

The SEGC is intended to be inclusive in terms of subject matter, with the sense of “geometry” being broadly defined. For example, here is a selection of subject areas for SEGC talks since the year 2000: algebraic geometry, convex geometry, computational geometry, computer-aided geometric visualization, differential geometry, geometric analysis, geometric optimization (e.g., minimal surfaces, ropelength, calibrated submanifolds), geometry of differential equations, geometric applications of integrable systems, integral geometry, knot theory, geometric methods in mathematical physics, and topology. By bringing together geometers with researchers applying geometric techniques to other areas of mathematics, the broad focus of the SEGC helps people in each group to recognize unexpected connections and new directions for future research.

The SEGC is also intended to be inclusive in terms of participants, and the organizers have actively sought to involve young mathematicians in the conference, both postdocs and graduate students. Recent conferences have included talks by postdocs from Johns Hopkins, Duke, and the University of Georgia, and by graduate students from NC State, University of Georgia, University of Illinois, and the University of Pennsylvania. Recent conferences have also featured a graduate student poster session, usually held in the evening, and we intend to continue this tradition.

The SEGC is unique in providing a multi-day geometry conference in the Southeast. This is important because the universities in this region are far enough apart that it is not usually feasible for mathematicians at one institution to attend a seminar at another. Furthermore, while SEGC participants have primarily come from institutions in the Southeast (Alabama, Florida, Georgia, North Carolina, South Carolina and Tennessee), the conference has also played an important role in bringing together researchers in the Southeast with new and existing collaborators from other parts of the U.S. (See below for lists of SEGC speakers for the conferences from 2000 through 2005.)

## 2 Recent Southeast Geometry Conferences

Since the year 2000, the SEGC has been rotating among the College of Charleston, the University of Georgia, and the University of South Carolina. Here are the dates and locations

for the SEGC during this period, along with some statistics:

- March 25–26, 2000: The SEGC was held at the College of Charleston, and featured 15 speakers giving 40-minute talks.
- March 16–18, 2001: The SEGC overlapped with a Special Session on the Geometry of Curves and Surfaces at a sectional meeting of the American Mathematical Society, held at the University of South Carolina, Columbia SC. The conference featured 21 speakers giving 20-minute talks.
- April 19–21, 2002: The SEGC was held at the University of Georgia, Athens, and featured 14 speakers giving 45-minute talks.
- March 29–30, 2003: The SEGC was held at the College of Charleston, featuring 15 speakers giving 40-minute talks, and a graduate student poster session.
- March 19–21, 2004: The SEGC was held at the University of Georgia, and was organized around the theme of *computational geometry*. The conference featured 7 speakers giving 50-minute talks, and a problem session.
- March 11–12, 2005: The SEGC was held at the University of South Carolina, and was organized around the theme of *convex geometry*. The conference featured 13 speakers giving 50-minute talks, and a grad student poster session.

### 3 Organizers

Although the organizing committee has varied from year to year depending on the venue for the SEGC, the long-term members of the organizing committee are:

- Jason Cantarella, Associate Professor, Dept. of Mathematics, University of Georgia
- Joseph Fu, Professor and Head, Dept. of Mathematics, University of Georgia
- Ralph Howard, Professor, Dept. of Mathematics, University of South Carolina
- Thomas Ivey, Associate Professor, Dept. of Mathematics, College of Charleston

Other local organizers have included: Malcolm Adams (University of Georgia), Steven Dilworth (University of South Carolina), Jim Brawner (Armstrong Atlantic State University), Annalisa Calini and Alex Kasman (College of Charleston), and Mohammad Ghomi (formerly at University of South Carolina, now at Georgia Tech).

### 4 Proposed Locations and Dates

We propose to hold the SEGC at the following venues during 2006–2008:

- March 10–12, 2006 at the College of Charleston
- March 16–18, 2007 at the University of Georgia, Athens

- March 14–16, 2008 at the University of South Carolina, Columbia

The proposed dates listed above are chosen to be the second weekend of spring break at the host institution; this way, availability of conference facilities on Friday afternoon will be assured. However, it is possible that scheduling conflicts will arise, so that it may be necessary to change these dates, or the order of rotation between these institutions. Also, geometers at other institutions in the region (e.g., the University of Tennessee at Knoxville) have expressed interest in hosting the SEGC in the near future.

## 5 Organization and Recruitment of Participants

In addition to being unique in format and scope within the southeastern U.S., one of the aspects of the SEGC that distinguishes it from other geometry conferences is the open nature of the procedure for recruiting speakers. During years when the organizers have chosen a particular theme for the conference, a few participants have been specifically invited to speak on topics appropriate to that theme. (Typically, these invitations have covered between one third and one half of the speaking slots.) The remaining speaking slots are allocated to those researchers who contact the organizers with requests to speak. When travel support is available to participants, this fact is made clear in the conference announcement, along with our preference for funding the participation of young researchers without grants, postdocs, and graduate students

Announcements of an upcoming Southeast Geometry Conference will be distributed in two ways: first, via an email list of geometry conference announcements maintained by Conrad Plaut of the Dept. of Mathematics at University of Tennessee, Knoxville; second, by mailing conference posters to mathematics departments primarily in the southeastern United States. For example, in December 2002 we mailed posters for the March 2003 conference to 35 institutions, including four-year colleges (e.g., Coastal Carolina University, Francis Marion University, Winthrop University), historically black institutions (e.g., South Carolina State University), and institutions on the periphery of the Southeast (William and Mary, Texas Tech, Tulane). Costs for the production and mailing of conference posters are included in the proposed budget.

We anticipate scheduling between 12 and 14 speakers at each conference, giving 45-minute time slots to each speaker. The conference will usually begin on a Friday afternoon, and conclude early on the following Sunday afternoon. We also intend to hold a graduate student poster session, which will be held on the first or second evening of the conference. Local organizers will be responsible for assisting with accommodations for participants (e.g., reserving blocks of rooms at nearby hotels, and organizing transportation from local airports).

## 6 Dissemination and Impact

There is no immediate plan for publishing proceedings for the SEGC. Instead, dissemination of results from the conference will be primarily through a conference website that includes titles and abstracts of talks given at the conference (and, if available, electronic copies of slide presentations), as well as titles of posters presented by graduate students. (The website for the most recent conference, which is located at <http://www.math.sc.edu/~howard/SEGC16/>,

also includes links to the speakers' own web pages, so that conference participants can keep in touch and learn more about each other's research after the conference is over.)

The impact of the conference is broad, and includes the following three aspects:

- For graduate students, the SEGC is an accessible and approachable conference, where they can learn about new research and open problems, and where they may have their first opportunity to disseminate the results of their thesis research.
- For faculty at the host and nearby institution, the SEGC is an important chance to interact with each other, with researchers at other universities in the Southeast, with geometers attending from other parts of the country, and to form new research collaborations.
- For young researchers and postdocs, the SEGC provides an important opportunity to give a conference talk of substantial length (45-50 minutes) and disseminate their research results to a new audience.
- For all participants, the breadth of topics covered by SEGC talks provides the opportunity to find unexpected connections and establish new relations between mathematicians working in different areas of geometry and its applications.

## 7 Institutional Support

We expect that local organizers and host institutions will provide suitable conference facilities for the SEGC, including a conference room equipped with a computer and projector, and another, larger space for the graduate student poster session. Refreshments for the conference and poster session are to be provided by local organizers and the host mathematics departments. In addition, when the SEGC is held at the College of Charleston, it is expected that the College will be able to provide free accommodation to a small number of conference speakers in on-campus guest houses.

## Speakers at Previous Southeast Geometry Conferences

- March 2000 (College of Charleston):

Thomas Banchoff (Brown University), Jeanne Clelland (University of Colorado), Mark Fels (Utah State University), Joe Fu (University of Georgia), Eddie Fuller (grad student, University of Georgia), John Harnard (University of Montreal), Eriko Hironaka (Florida State), Thomas Ivey (Ball State University), Will Kazez (University of Georgia), Arkady Kholodenko (Clemson), Marek Kossowski (University of South Carolina), Clint McCrory (University of Georgia), Conrad Plaut (University of Tennessee), Emma Previato (Boston University), Sandi Shields (College of Charleston)

- March 2001 (University of South Carolina):

Stephanie Alexander (University of Illinois), Richard Bishop (University of Illinois), Jason Cantarella (University of Georgia), Joe Fu (University of Georgia), Eddie Fuller (postdoc, Duke University), Mohammad Ghomi (University of South Carolina), Ralph

Howard (University of South Carolina), Thomas Ivey (College of Charleston), Rob Kusner (University of Massachusetts), John McCuan (Georgia Tech), Frank Morgan (Williams College), Scott Pauls (Rice University), Jie Qing (Santa Cruz), David Singer (Case Western Reserve), Alina Stancu (Lille), John Sullivan (University of Illinois), Andrejs Treibergs (University of Utah), Walter Wei (University of Oklahoma), Joel Weiner (University of Hawaii), Henry Wente (University of Toledo), Elisabeth Werner (Case Western Reserve)

- April 2002 (University of Georgia):

Casim Abbas (Michigan State), Jeanne Clelland (University of Colorado), Elizabeth Denne (grad student, University of Illinois), Yuanan Diao (UNC Charlotte), Chaim Goodman-Strauss (University of Arkansas), Weiqing Gu (Harvey Mudd College), Haydee Herrera (Tufts), Thomas Ivey (College of Charleston), Sungwok Lee (University of Southern Mississippi), John McCuan (Georgia Tech), Chris Moseley (Agnes Scott College), Conrad Plaut (University of Tennessee), John Sullivan (University of Illinois), Kris Tapp (Stony Brook)

- March 2003 (College of Charleston):

Samer Al-Ashhab (grad student, NC State), Jeanne Clelland (University of Colorado), Yuanan Diao (UNC Charlotte), Michael Gekhtman (Notre Dame), Mohammad Ghomi (University of South Carolina), Bo Guan (University of Tennessee), Mark Haskins (postdoc, Johns Hopkins), Ralph Howard (University of South Carolina), Rob Kusner (University of Massachusetts), J.M. Landsberg (Georgia Tech), Clint McCrory (University of Georgia), Ivan Sterling (St. Mary's College of Maryland), John Sullivan (University of Illinois), Magdalena Toda (Texas Tech), Heiko von der Mosel (Bonn)

- March 2004 (University of Georgia):

David Cohen-Steiner (postdoc, Duke University), Herbert Edelsbrunner (Duke University), Daniel Hug (Freiburg), Erwin Lutwak (Polytechnic University), John McCuan (Georgia Tech), Katsuhiro Moriya (University of Massachusetts), John Zweck (University of Maryland)

- March 2005 (University of South Carolina):

Daniel Dix (University of South Carolina), Ronald Fulp (NC State), Eric Grinberg (University of New Hampshire), Haydee Herrera (Rutgers), Alexander Koldobsky (University of Missouri), Jason Parsley (postdoc, University of Georgia), Conrad Plaut (University of Tennessee), Jesse Ratzkin (postdoc, University of Connecticut), Nandor Simanyi (University of Alabama), Laszlo Szekely (University of South Carolina), Roman Vershynin (Davis), Shirley Yap (grad student, University of Pennsylvania), Artem Zvavitch (Kent State)

## Proposed Budget and Budget Justification

	2006	2007	2008	Cumulative
Participant Travel	6000	6000	6000	18000
Materials, Supplies, Mailing Costs	200	200	200	600
Totals	6200	6200	6200	18600

We request travel and subsistence support for two and half days, including two nights' accommodation, for roughly a dozen SEGC participants at an average rate of \$500 per person. Our priorities will be first funding speakers without other travel funds, and then funding postdocs and graduate students.

We also request \$200 per year to cover the cost of conference supplies (folders, pads, transparencies), and the printing and mailing of conference posters.