

July 17, 2010

CHARTER RENEWAL APPLICATION

This CHARTER RENEWAL APPLICATION applies to the SIAM Activity Group on Orthogonal Polynomials and Special Functions (SIAG/OPSF). The SIAM Activity Group (or SIAG) to which this renewal applies was originally formed under the aegis of SIAM on July 15, 1990 by the SIAM Council and July 19, 1990 by the SIAM Board of Trustees, with its initial operating period beginning January 1, 1990 and ending December 31, 1992. Its charter has been renewed by the Council and the Board six times thereafter. This SIAG had 150 members as of December 31, 2009.

According to its Rules of Procedure, the objective(s) of the SIAG are to promote basic research in orthogonal polynomials and special functions; to further the application of this subject in other parts of mathematics, and in science and industry; and to encourage and support the exchange of information, ideas, and techniques between workers in this field, and other mathematicians and scientists.

Its purposed functions were to: 1) Organize minisymposia at the SIAM Annual Meeting in years where there is no SIAG conference. 2) Organize a track of at least six minisymposia at the SIAM Annual Meeting at least once every five years.

This SIAG does not have a regularly scheduled conference, though there is a biennial conference on "*Orthogonal Polynomials, Special Functions and Applications*" which essentially serves as one.

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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 OPSFA knows an important activity during the last years due to the influence of contributions by individuals, many of them related to our SIAG, but also because of the increasing attention from different areas like Random Matrices, Integrable Systems, Number Theory as a sample. New techniques related to Riemann Hilbert problems, operator theory, rational approximation, asymptotic analysis, Potential Theory contribute to enhance our domain. Monographs and specialized meetings offer a good opportunity to reach people with different background and this represents a progress in the different approaches far away the standard reference to our domain as Classical Analysis. The main problem is that the most important contributions do not appear in the SIAM Journal of Mathematical Analysis as we will point out in below.

The popular and successful monographs by B. Simon, M. E. H. Ismail, and P. Deift, among others, as well as the very recent *NIST Handbook of Mathematical Functions* edited by Frank Olver, Dan Lozier et al, with an relevant implication of our community, constitute a good sample of the growing and impact of

our field. Finally, the aims of the large number of events which are announced in our Electronic News Net also show the significant advances and impact of the activities around OPSF.

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?

From a quantitative perspective, the membership of our SIAG remains stable. With the proposed actions listed in below we hope to increase the number of members with young researchers and people from developing countries. Some actions concerning the sponsoring of activities there would allow to contribute the attraction of more people in order to increase not only numerically but from a qualitative point of view our activity inside SIAM.

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.

Several SIAG members have supported the editions of OPSF in Luminy, France (July 2007) and Leuven (July 2009) integrating the Organizing and Scientific Committees as well as invited speakers. Unfortunately, because of a lack of financial support, our SIAG did not appear on the list of sponsors of such events. Nevertheless, we have organized therein presentations of our SIAG and discussions about our role have been done not only with our membership attending the meeting but also with other people.

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 tract of minisymposia at an annual meeting?

We have not organized minisymposia at the last two SIAM annual meetings because of the formulation of new actions of our SIAG. The last minisymposia at a SIAM annual meeting was organized in 2006. See http://meetings.siam.org/sess/dsp_programsess.cfm?SESSIONCODE=5340

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.

5.1.-The Electronic News Net of the SIAM Activity Group on OPSF appears every two months and constitutes one of the most important ways to disseminate information about scientific events, related to the aims of our SIAG, updated papers and contributions as well as opinions about our activity. It is received by all our membership and we have an interesting feedback with comments and suggestions concerning our activities.

5.2.-The OP-SF Talk has been transferred from NIST to SIAM in order to stimulate the visibility of our SIAG. We have a web page (<http://www.siam.org/activity/opsf/>), where recent information and the archives of our SIAG can be read.

5.3.-We have proposed to SIAM the creation of the Gabor Szegö Prize to award every two years an early-career researchers for outstanding research, as determined by the prize committee, in the area of orthogonal polynomials and special functions. The proposal was sent to the President of SIAM early March 2010 and we are waiting the final decision of the SIAM Board. It would be an important recognition not only of the individuals but also of the SIAG.

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

6.1.- To improve the support from SIAM to the OPSFA meetings that hold every two years in Europe with a very successful participation and quality of contributions. The tradition of these events is an important reference for our community and a very good place to explain our activity and our accountability.

6.2.- To Organize mini-symposia at the SIAM Annual Meeting in years where there is no an OPSFA conference. An important question is to have financial support from founding agencies as well as from SIAM.

6.3.- To promote the organization of Summer Schools in developing countries of Latin-America, Africa and South East Asia, where we have identified individuals, teams and institutions interested in our area. We will start with a Summer School in Tunisia in 2012 and in Brazil in 2014, but the financial support for such events constitutes a critical point. The suggested interval of two years seems to be realistic. Furthermore, a Summer School in the framework of the OPSFA symposium would be also important to optimize financial and human resources, mainly in order to support the travel and accommodation expenses of young researchers.

6.4.- We plan to increase our membership by informing researchers in our area of our SIAG activities through the mailing list, OPSF-Talk. Currently, the majority of our members are from the US, while many of the experts in the field are in Europe, Africa and Asia.

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

7.1.- First of all, with some financial support to our activities as well as their dissemination. In such a sense, SIAM News would be a nice platform for such a support but as we have pointed out in many occasions, our SIAG has not identified a SIAM scientific journal with the scope of our research interests. The evolution of the Editorial Board of SIAM Journal of Mathematical Analysis (a basic reference for the research on OPSFA from their origins until the mid nineties, not only because many relevant contributions to our domain were published here but also because of the participation of many of our most outstanding research leaders as members of the Board) shows a loss of the visibility of our membership therein and, as a consequence, the attraction of people to our SIAG.

7.2.- The Gabor Szego Prize, as a recognition of the outstanding activity of junior researchers, will represent an important tool to promote our SIAG. In such a sense, a quick answer from SIAM officials concerning our proposal would be very convenient and welcome.

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

8.1.- The dissemination of the relevant contributions in areas where OPSF play an important role.

8.2.- The organization of mini-symposia in the SIAM Annual Meetings where the emphasis on applications of OPSF in several areas (engineering, biomathematics, criptography, computer science, etc) can receive an important feedback from other researchers.

8.3.- The support to young researchers interested in our domain using the OPSF Summer Schools in order to create a critical mass and enhance the links between the different teams.

8.4.- The designation of liaison persons of our SIAG with related scientific organizations; for example Society for Special Functions and Applications (SSFA) in India, the Mathematical Physics interest group of the Institute of Physics as well as inside other organizations related to our interest areas , from either an applied or computational perspective. On the other hand, there are already informal links with electronic journals such as SIGMA because of memberships on editorial boards.

This SIAG requests that the SIAM Council and Board of Trustees renew its charter for a three-year operating period beginning January 1, 2010.

Francisco Marcellan

Chair, SIAG/OPSF

May 31, 2010.

SIAM Board
 Regular Session
 July 17, 2010

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 Attachment 1
 Page 1 of 1

APPENDIX A: Petition of Support

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