

CHARTER RENEWAL APPLICATION

This CHARTER RENEWAL APPLICATION applies to the SIAM Activity Group on Control and Systems Theory. The SIAM Activity Group (or SIAG) to which this renewal applies was originally formed under the aegis of SIAM on July 20, 1986 by the SIAM Council and July 25, 1986 by the SIAM Board of Trustees with its initial operating period beginning January 1, 1987 and ending December 31, 1989. Its charter has been renewed by the Council and Board six times thereafter. This SIAG had 472 members as of December 31, 2006.

According to its Rules of Procedure, the objective(s) of the SIAG are to foster activity and interaction between mathematicians, engineers and other scientists interested in control and systems theory. The SIAG plans to encourage further development of theory and methods for the estimation and control of systems.

Its purposed functions were to organize activities, including conferences, sessions at SIAM meetings, sessions at meetings of other organizations cooperating with SIAM, and publications, to (1) promote interaction between mathematicians, engineers and other scientists interested in control and systems theory, (2) keep SIAM membership up to date on developments in this area, (3) facilitate the development of system theory and (4) encourage its application.

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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?

Mathematical control theory remains a vital and important field, as witnessed by the health of journals such as the SIAM Journal on Control and Optimization and the several large meetings in this field that include the Control and Decision Conference (CDC) of the IEEE and the conference of this SIAG. Recent focuses in the field include a heavier emphasis on quantum control, systems biology and control and optimization of distributed parameter systems (PDEs) The attached program from the SIAM Conference on Control and its Applications in 2007 reflects these themes.

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 activity group had 472 members at the end of the last calendar year, of which 158 were students. The activity group has grown in size in each of the past five years.

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.

The activity group sponsors the SIAM Conference on Control and its Applications. This meeting was held every three years. We propose to make this a biennial meeting. The next conference will be held in San Francisco on June 29 – July 1, 2007. The last conference was held with the SIAM Annual Meeting in 2005 in New Orleans.

A representative from SIAG CST served on the Program Committee of the IEEE Conference on Decision and Control which is held each December.

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?

The 2005 SIAM Conference on Control and its Applications was held jointly with the annual meeting.

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?

We have instituted a list server siam-cst@siam.org for the membership of the SIAG CST. We have also instituted the SIAG CST Best SICON Paper Prize, which will be awarded for the first time at CT09. The authors of two papers published in SICON during calendar years 2007 and 2008 will be recognized for their achievements.

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

SIAG CST plans to hold the Eighth SIAM Conference on Control and its Applications in 2009. Preliminary discussions are under way to hold it with the Annual Meeting in Denver, CO.

The SIAG will continue to cooperate with the IEEE Conference on Decision and Control to select accepted but unpublished SICON papers to be presented at those meetings

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

The group continues to be an active and successful SIAG. The book series, journal, and SIAG (with its biennial conference) all complement each other to help the SIAG promote its mission to advance this subarea of mathematics and its applications.

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

We feel the SIAG accomplishes this through the various activities that go well beyond a conference. Assisting the SIAG to cooperate with the IEEE CDC is one important example.

This SIAG requests that the SIAM Council and Board of Trustees renew its charter for a two-year operating period beginning January 1, 2008.

Signed

Arthur J. Krener
June 21, 2007

2007 SIAM Conference on Control and Its Applications

Conference Program

Minisymposia presentations are 25 minutes with an additional 5 minutes of discussion. Contributed Presentations are 15 minutes with an additional 5 minutes of discussion.

Thursday, June 28		
5:00 PM - 8:00 PM	Registration	Poolside Pavilion
6:00 PM - 8:00 PM	Welcome Reception	Atrium
Friday, June 29		
7:00 AM - 4:00 PM	Registration	Poolside Pavilion
7:45 AM - 8:00 AM	Welcome Remarks	Grand Peninsula E/F/G
8:00 AM - 8:45 AM	<u>IP1 Robustness Analysis of Biological Circuits: Application to Circadian Clock Networks</u> Frank Doyle, <i>University of California, Santa Barbara</i>	Grand Peninsula E/F/G
8:45 AM - 9:30 AM	<u>IP2 Control of Nuclear Spin Systems</u> Navin Khaneja, <i>Harvard University</i>	Grand Peninsula E/F/G
9:30 AM - 10:00 AM	Coffee Break	Poolside Pavilion
10:00 AM - 12:00 PM Concurrent Sessions	<u>CP1 Control - Part I of II</u>	Sandpebble D
	<u>MS1 Numerical Methods for Optimization with PDE Constraints - Part I of IV</u>	Grand Peninsula E
	<u>MS2 Variational Analysis In Control And Optimization - Part I of III</u>	Grand Peninsula F
	<u>CP2 Finance and Industry</u>	Sandpebble E
	<u>MS3 Analysis and Control of Fluid and Fluid-Structure Interactive PDEs - Part I of II</u>	Grand Peninsula G
	<u>MS4 Optimal Control - Part I of II</u>	Bayside A/B
	<u>MS5 Recent Advances in Adaptive Control and Information Fusion - Part I of II</u>	Sandpebble A/B
	<u>MS6 Control and Identification Approaches to Biological Systems</u>	Sandpebble C
12:00 PM - 1:30 PM	Lunch Break	Attendees on their own
1:30 PM - 2:15 PM	<u>IP3 Balanced Order Reduction for Nonlinear Systems; Duality and Normalized Coprime Factorizations</u> Jacqueliën Scherpen, <i>University of Groningen, Netherlands</i>	Grand Peninsula E/F/G
2:15 PM - 2:45 PM	Coffee Break	Poolside Pavilion
2:45 PM - 4:45 PM	<u>CP3 Control - Part II of II</u>	Sandpebble D

Concurrent Sessions	<u>CP4 PDEs and Control - Part I of II</u>	Sandpebble E
	<u>MS7 Numerical Methods for Optimization with PDE Constraints - Part II of IV</u>	Grand Peninsula E
	<u>MS8 Variational Analysis In Control And Optimization - Part II of III</u>	Grand Peninsula F
	<u>MS9 Analysis and Control of Fluid and Fluid-Structure Interactive PDEs - Part II of II</u>	Grand Peninsula G
	<u>MS10 Optimal Control - Part II of II</u>	Bayside A/B
	<u>MS11 Nonlinear Smart Material Systems</u>	Sandpebble A/B
	<u>MS12 Computational Methods for Design and Control of Distributed Parameter Systems</u>	Sandpebble C
5:00 PM - 5:45 PM	<u>PD1 Future Directions in Control and Its Applications</u>	Grand Peninsula F
Saturday, June 30		
7:30 AM - 4:00 PM	Registration	Poolside Pavilion
7:55 AM - 8:00 AM	Remarks	Grand Peninsula E/F/G
8:00 AM - 8:45 AM	<u>IP4 On Pseudospectral Methods of Nonlinear Optimal Control</u> <i>Wei Kang, Naval Postgraduate School</i>	Grand Peninsula E/F/G
8:45 AM - 9:30 AM	<u>IP5 The Theory of Fast and Robust Adaptation.</u> <i>Naira Hovakimyan, Virginia Tech</i>	Grand Peninsula E/F/G
9:30 AM - 10:00 AM	Coffee Break	Poolside Pavilion
10:00 AM - 12:00 PM Concurrent Sessions	<u>CP5 Biology and Control</u>	Sandpebble C
	<u>CP6 Applications</u>	Sandpebble D
	<u>CP7 Stochastic Control</u>	Sandpebble E
	<u>MS13 Numerical Methods for Optimization with PDE Constraints - Part III of IV</u>	Grand Peninsula E
	<u>MS14 Variational Analysis In Control And Optimization - Part III of III</u>	Grand Peninsula F
	<u>MS15 Bellman and Isaacs Equations - Part I of II</u>	Grand Peninsula G
	<u>MS16 Model Reduction for Control and Dynamical Systems - Part I of II</u>	Bayside A/B
	<u>MS17 Optimal Control of Time-Dependent Problems - Part I of II</u>	Sandpebble A/B
12:00 PM - 1:30 PM	Lunch Break	Attendees on their own
1:30 PM - 2:15 PM	<u>IP6 On Distributed Control and Price Mechanisms</u> <i>Anders Rantzer, Lund University, Sweden</i>	Grand Peninsula E/F/G
2:15 PM - 2:45 PM	Coffee Break	Poolside Pavilion
2:45 PM - 4:45 PM	<u>CP8 Networks and Decentralized Control</u>	Sandpebble C
	<u>CP9 Robotics</u>	Sandpebble D
	<u>MS18 Numerical Methods for Optimization with PDE Constraints - Part IV of IV</u>	Grand Peninsula E

Concurrent Sessions	MS19 Control of Systems Modelled by Partial Differential Equations	Grand Peninsula F
	MS20 Bellman and Isaacs Equations - Part II of II	Grand Peninsula G
	MS21 Model Reduction for Control and Dynamical Systems - Part II of II	Bayside A/B
	MS22 Optimal Control of Time-Dependent Problems - Part II of II	Sandpebble A/B
5:00 PM - 6:00 PM	SIAG CST Business Meeting	Grand Peninsula F
Sunday, July 1		
7:30 AM - 12:00 PM	Registration	Poolside Pavilion
7:55 AM - 8:00 AM	Closing Remarks	Grand Peninsula E/F/G
8:00 AM - 8:45 AM	IP7 The Role of Control in Design: from Fixing Problems to the Design of Dynamics <i>Andrzej Banaszuk, United Technologies Research Center</i>	Grand Peninsula E/F/G
8:45 AM - 9:30 AM	IP0 Reid Prize Lecture: The Maximum Principle of Optimal Control, Fifty Years Later <i>Hector J. Sussmann, Rutgers University</i>	Grand Peninsula E/F/G
9:30 AM - 9:45 AM	Coffee Break	Poolside Pavilion
9:45 AM - 10:30 AM	IP0 SIAG / Control Systems Theory Prize Lecture: Structure and Passivity in Networks of Dynamic Systems <i>Murat Arcaç, Rensselaer Polytechnic Institute</i>	Grand Peninsula E/F/G
10:30 AM - 10:45 AM	Intermission	NA
10:45 AM - 12:45 PM Concurrent Sessions	CP10 Computation and Control	Sandpebble C
	CP11 PDEs and Control - Part II of II	Sandpebble D
	CP12 Identification and Learning	Sandpebble E
	MS23 New Techniques in Networked Control Systems	Grand Peninsula E
	MS24 Optimization Problems in Electromagnetic, Electronic and Photonic Device Design	Grand Peninsula F
	MS25 Cooperative Control and Sensing	Grand Peninsula G
	MS26 Partial Differential Equations in Control Theory	Bayside A/B
	MS27 Recent Advances in Collaborative Path-Planning and Decision-Making - Part II of II	Sandpebble A/B
12:45 PM - 12:45 PM	Conference Adjourns	

CT07 Home	Program	Program Updates	Speaker Index	Hotel	Transportation	Registration
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