

SIAM Unwrapped - January 2013

News & announcements for the SIAM membership community



Dear SIAM members,

Season's greetings! As we welcome the New Year, we acknowledge that 2013 has been designated the year of Mathematics of Planet Earth. The dedication was made by more than 100 scientific societies, universities, research institutes, and organizations worldwide. Read more about it below.

We also welcome new officers for several of our activity groups who begin their terms this month.

We regret to inform you that Former SIAM President Chia-Chiao Lin has passed away. Please find details and links to an obituary below.

Regards,

Karthika Muthukumaraswamy

Editor

2013 is designated as the year of Mathematics of Planet Earth. SIAM supports MPE13.



Contents:

SIAM HQ UPDATE

- SIAM welcomes new SIAG Officers
- Chia-Chiao Lin passes away

PUBLIC AWARENESS

- 2013 is the year of Math of Planet Earth
- The mathematical sciences in 2025
- Explaining math research via nuggets and clips

STUDENT NEWS & NOTES

- Free SIAM memberships for students
- Deadline for G2S3 2013 fast approaching
- Run Gene Golub SIAM Summer School in 2014!

PUBLISHING NEWS AND NOTES

- SIAM e-books on Google Play™
- New and improved SIAM Books
 - *Algebraic and Geometric ideas in the Theory of Discrete Optimization*
 - *Mathematical Models for Communicable Diseases*
 - *Semidefinite Optimization and Convex Algebraic Geometry*
 - *Computational Mathematical Modeling: An Integrated Approach Across Scales*

UPDATES ON CONFERENCES & PRIZES

- Conferences accepting registrations and submissions
- Open calls for prize nominations and submissions
- AMCS conferences and events

::: SIAM HQ UPDATE :::

SIAM welcomes new SIAG Officers

New SIAG officers have been elected for several of SIAM's activity groups. Terms began on January 1. Officers of all SIAGs will serve 2-year terms, with the exception of the SIAG on Linear Algebra, which elects for three-year terms. We welcome all new appointees and thank all candidates for their participation.

SIAG on Analysis of Partial Differential Equations

Chair: Edris Titi; Vice Chair: Catherine Sulem; Program Director: Suncica Canic; Secretary: Anna Mazzucato

SIAG on Computational Science and Engineering

Chair: Uli Ruede; Vice Chair: Karen Willcox; Program Director: Lois Curfman McInnes; Secretary: Hans De Sterck

SIAG on Financial Mathematics & Engineering

Chair: Ronnie Sircar; Vice Chair: Kay Giesecke; Program Director: Sebastian Jaimungal; Secretary: Michael Ludkovski

SIAG on Geosciences

Chair: Todd Arbogast; Vice Chair: Iuliu Sorin Pop; Program Director: Knut-Andreas Lie; Secretary: Beatrice Riviere

SIAG on Life Sciences

Chair: M. Gregory Forest; Vice Chair: Maia Martcheva; Program Director: Robert Guy; Secretary: Janet Best

SIAG on Linear Algebra

Chair: Danny C. Sorensen; Vice Chair: James G. Nagy; Program Director: Françoise Tisseur; Secretary: David S. Bindel

SIAG on Nonlinear Waves & Coherent Structures

Chair: Edgar Knobloch; Vice Chair: Margaret Beck; Program Director: Paul Milewski; Secretary: Richard Moore

SIAG on Uncertainty Quantification

Chair: Max Gunzburger; Vice Chair: Mark Berliner; Program Director: Raul Tempone; Secretary: Youssef Marzouk

Please see full details on all new officers, their research interests, and SIAM activities here:

<http://connect.siam.org/?p=2894>

Chia-Chiao Lin passes away

Former SIAM President Chia-Chiao Lin, who held the office from 1972-74, has passed away at the age of 97. Dr. Lin also served on the SIAM Board of Trustees from 1978 to 1980. Tsinghua University, where he had been a Distinguished Professor since 2002, [announced](#) that Dr. Lin died in Beijing on the morning of January 13, 2013. The family identified heart failure as the cause of death. An internationally renowned authority in mechanics and applied mathematics, Dr. Lin's initial research in fluid mechanics and hydrodynamics stability and turbulence greatly influenced the field of fluid flow. His later research interests focused on hydrodynamics of superfluid helium and astrophysics. He is well known for the book, "Mathematics Applied to Deterministic Problems," which he co-authored with Lee Segel, and which was re-published by SIAM as a classic. Through his groundbreaking research and service to the community, Dr. Lin played a pioneering role in the development of the applied mathematics field in the United States and China.

Please read a detailed obituary on the MIT news site:

<http://web.mit.edu/newsoffice/2013/obit-chia-chiao-lin.html>

Several tributes to Dr. Lin have also been published in blogs of leading Chinese universities, including an [obituary](#) in Sciencenet news.

::: PUBLIC AWARENESS :::

2013 is the year of Math of Planet Earth

The year 2013 has been designated as the Mathematics of Planet Earth (MPE2013). An international effort by the mathematical science community, the goal of MPE2013 is to make lasting contributions to the well-being of planet Earth. Over one hundred academic institutions and scholarly societies worldwide are partners in the effort. The U.S. launch occurred on Wednesday, January 9, at the Joint Mathematics Meetings—the world's largest annual mathematics conference—which took place last week in San Diego, California. Over the course of the MPE2013 year, mathematics research institutes worldwide will host programs marshalling resources of the mathematical science research community to address key issues and challenges related to planet Earth.

To read more about the initiative, please visit the MPE2013 website:

<http://mpe2013.org/>

The mathematical sciences in 2025

Given the impact of the mathematical sciences in diverse areas of daily life—the Internet, medical technology, entertainment and weather prediction, to mention just a few—the National Academies' Division on Engineering and Physical Sciences released a report last week examining the current state of the field, in addition to forecasting and making recommendations for the future. The forward-looking report produced by the Board on Mathematical Sciences and its Applications, titled “The Mathematical Sciences in 2025,” outlines steps that need to be taken in order to ensure that the mathematical sciences continue to be strong over the next decade and more, and contribute effectively toward science and engineering in the U.S. Among the recommendations are suggestions to reassess the training of future generations of mathematical scientists owing to growth in cross-disciplinary aspects of the field. The report also emphasizes the need for the government and educational institutions to invest in the full spectrum of the mathematical sciences to foster exchange of ideas among disciplines in order to ensure long-term success. The study was sponsored by the National Science Foundation's Division of Mathematical Sciences.

To read the full report, visit the National Academies website:

<http://sites.nationalacademies.org/DEPS/Reports/index.htm>

Explaining math research via nuggets and clips

Some of the exciting work published in SIAM journals and cutting-edge research presented at SIAM conferences is captured in the form of SIAM “Nuggets” and videos. The latest example includes a little of both: [Finding answers in big data sets](#) recaps the Big Data panel at the SIAM Annual Meeting last year, where panelists spoke about the impact of large-scale data in fields as diverse as bioinformatics, high energy physics, and social science. In addition to explaining how the analysis of large-scale data is furthering scientific and technological research, the panelists also addressed the need to be cautious while interpreting data, reinforcing that the sheer size and complexity of large data sets makes the extraction of information that much more challenging.

Read the nugget and view the video here:

<http://connect.siam.org/?p=2846>

::: STUDENT NEWS & NOTES :::

Free SIAM memberships for students

If you didn't already know, SIAM provides free and deeply discounted rates for student members. There are several ways to avail of a [free](#) SIAM student membership: if you attend an institution that is an [Academic Member of SIAM](#), if you are a member of a [Student Chapter of SIAM](#), or if you are [nominated](#) by a nonstudent member of SIAM. Look for a list of academic member schools in the January/February issue of *SIAM News*. Visit the student membership page for additional details:

<http://www.siam.org/students/memberships.php>

Deadline for G2S3 2013 fast approaching

Graduate students, don't miss an opportunity to learn about state-of-the-art topics from outstanding researchers in the field. The 2013 Gene Golub SIAM Summer School (G2S3) on *Matrix Functions and Matrix Equations* will be held at Fudan University, Shanghai, China from July 22 - August 2, 2013. Comprised of three mini-courses, the school will introduce students to underlying theory, algorithms and applications of matrix functions and matrix equations, which allow succinct and insightful ways to formulate problems and express solutions. Uses of matrix functions and equations range from exponential integrators for the solution of partial differential equations to model reduction of dynamical systems.

Applications to the school are being accepted until February 1. For more information on how to apply, go to:

<http://g2s3.cs.ucdavis.edu/index.html>

Run Gene Golub SIAM Summer School in 2014!

It's not too early to look forward to G2S3 2014. SIAM is calling for letters of intent for proposals of topics and organizers for the Gene Golub SIAM Summer School to be held in 2014. The courses in the proposed two-week school for approximately 45 graduate students are expected to be at the research level with some computational flavor. Topics should be of current interest, not usually found in regular university courses, including lectures and exercises/project sessions. The deadline for letters of intent is January 31, 2013. The school will be held in the period between June and August 2014 ensuring that there is no conflict with SIAM Annual Meeting travel. More information is at:

<http://www.siam.org/students/g2s3/>

::: PUBLISHING NEWS AND NOTES :::

SIAM e-books on Google Play™

SIAM books are now available electronically on Google Play™ for use with popular e-book platforms, including Apple® and Android™ devices; Nook®; Sony® eReader; as well as most tablets, laptops, smartphones, and desktop computers. To purchase, visit play.google.com and search for your desired title. Follow the instructions to buy and download (or use from Cloud storage).

New and improved SIAM Books

Algebraic and Geometric ideas in the Theory of Discrete Optimization

Jesús De Loera, Raymond Hemmecke, Matthias Köppe

The book offers several research technologies not yet well known among practitioners of discrete optimization, minimizes prerequisites for learning these methods, and provides a transition from linear discrete optimization to nonlinear discrete optimization.

Additional information: <http://www.ec-securehost.com/SIAM/MO14.html>

2012 / xx + 313 pages / Softcover / 978-1-611972-43-6

List Price \$109.00 / MOS/SIAM Member Price \$76.30 / **Order Code MO14**

Mathematical Models for Communicable Diseases

Fred Brauer and Carlos Castillo-Chavez

This graduate-level textbook would appeal to anyone interested in the mathematical theory of disease transmission models. It is self-contained and accessible to readers comfortable with calculus, elementary differential equations, and linear algebra. The book provides insight into modeling cross-immunity between different disease strains (such as influenza) and the synergistic interactions between multiple diseases (e.g., HIV and tuberculosis); diseases transmitted by viral agents, bacteria, and vectors (e.g., mosquitos transmitting malaria to humans); and both epidemic and endemic disease occurrences.

Additional information: <http://www.ec-securehost.com/SIAM/CB84.html>

2012 / xvi + 276 pages / Softcover / ISBN 978-1-611972-41-2

List Price \$77.00 / SIAM Member Price \$53.90 / **Order Code CB84**

Semidefinite Optimization and Convex Algebraic Geometry

Edited by Grigoriy Blekherman, Pablo A. Parrilo, and Rekha R. Thomas

This book provides a self-contained, accessible introduction to the mathematical advances and challenges resulting from the use of semidefinite programming in polynomial optimization. Each chapter addresses a fundamental aspect of convex algebraic geometry, which is a quickly evolving research area

with contributions from the diverse fields of convex geometry, algebraic geometry, and optimization. The book begins with an introduction to nonnegative polynomials and sums of squares and their connections to semidefinite programming and quickly advances to several areas at the forefront of current research.

Additional information: <http://www.ec-securehost.com/SIAM/MO13.html>

2012 / xiv + 362 / ISBN 978-1-611972-28-3

List Price \$129.00 / SIAM Member Price \$90.30 / **Order Code: MO13**

Computational Mathematical Modeling: An Integrated Approach Across Scales

Daniela Calvetti and Erkki Somersalo

Complex real-world mathematical modeling problems can usually be studied at different scales. The scale at which the investigation is carried out is one of the factors that determines the type of mathematics most appropriate to describe the problem. The book concentrates on two modeling paradigms: the macroscopic, in which the authors describe phenomena in terms of time evolution via ordinary differential equations, and the microscopic, which requires knowledge of random events and probability. The text emphasizes the development of computational skills to construct predictive models and analyze the results. To elucidate the concepts, a wealth of examples and portions of MATLAB[®] code used by the authors are included.

Additional information: <http://www.ec-securehost.com/SIAM/MO13.html>

2012 / x + 212 / ISBN 978-1-611972-47-4

List Price \$69.00 / SIAM Member Price \$49.30 / **Order Code: MM17**

::: UPDATES ON CONFERENCES & PRIZES :::

Conferences accepting registrations and submissions:

[SIAM Conference on Computational Science & Engineering \(CSE13\)](#), February 25-March 1, 2013, Boston, Massachusetts, USA

Pre-registration Deadline: January 28, 2013

<https://www.siam.org/meetings/cse13/regform.php>

[SIAM Conference on Mathematical Aspects of Materials Science \(MS13\)](#), June 9-12, 2013, Philadelphia, Pennsylvania, USA

Submission Deadlines:

Poster Submissions and abstracts for minisymposium speakers: January 15, 2013 (*Contributed Lectures are not being solicited for MS13.*)

<http://www.siam.org/meetings/ms13/submissions.php>

[SIAM Conference on Control and Its Applications \(CT13\)](#), July 8-10, 2013, San Diego, California, USA

Submission Deadlines:

Abstracts for contributed speakers and poster presenters: January 28, 2013:

Full Paper Submission (Optional) for Consideration in Proceedings: January 28, 2013

For full information on how to be considered for the proceeding for CT13, be sure to consult the submissions page:

<http://www.siam.org/meetings/ct13/submissions.php>

[2013 SIAM Annual Meeting \(AN13\)](#), July 8-12, 2013, San Diego, California, USA

Submission Deadlines:

Abstracts for contributed speakers and poster presenters: January 28, 2013

<http://www.siam.org/meetings/an13/submissions.php>

[SIAM Conference on Applied Algebraic Geometry \(AG13\)](#), August 1-4, 2013, Fort Collins, Colorado, USA

Submission Deadlines:

Abstracts for contributed and minisymposium speakers: February 25, 2013

<http://www.siam.org/meetings/ag13/submissions.php>

Open calls for prize nominations and submissions

SIAM Student Paper Prize

Submissions for the SIAM Student Paper Prize are due February 15. Please e-mail submissions to student_paper_prize@siam.org. For details, visit:

http://www.siam.org/prizes/nominations/nom_student.php

For the following prizes, nominations are due February 15, 2013:

SIAG/CST Best SICON Paper Prize

SIAM Student Paper Prize

Find the complete list of calls for nominations at:

<http://www.siam.org/prizes/nominations.php>

AMCS conferences and events

[Call for papers for the IMU-AMS 2014 meeting](#)

[Registration for ANZIAM 2013 is now open](#)

[Registration is open for AAAS 2013 Annual Meeting](#)

If your email does not support the hyperlink features, please copy any of the above URLs and paste them into your Internet browser.

Questions/comments/suggestions? Send them to karthika@siam.org.

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SIAM Unwrapped is a free electronic newsletter distributed monthly to SIAM members. It provides links to industry news, membership information, meetings, publications, and other items of interest.

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