2023 SIAG/ACDA

SIAM Conference on Applied and Computational Discrete Algorithms
Co-located with the SIAM Conference on Optimization

Activity Group on Applied and Computational Discrete Algorithms Business Meeting

Thursday, June 1st, 6:30 - 7:30 pm PDT
Aspen, 2nd floor
The Sheraton Grand Seattle
Seattle, Washington U.S.

#SIAMACDA23
SIAM President
Sven Leyffer, Argonne National Laboratory
SIAG/ACDA Officers

Chair:
Blair D. Sullivan, University of Utah

Vice Chair:
Michael Bender, Stony Brook University

Program Director:
Bora Uçar, CNRS, ENS de Lyon

Secretary:
Kathrin Hanauer, University of Vienna
Thank you to all 2021-2022 Officers

**Chair:**
Cynthia Phillips, Sandia National Laboratory

**Vice Chair:**
Henning Meyerhenke, HU Berlin

**Program Director:**
Uwe Naumann, RWTH Aachen

**Secretary:**
Bora Uçar, CNRS, ENS de Lyon
2023 SIAG/ACDA
State of the SIAG
(data as of December 31, 2022)
SIAG/ACDA SIAM Fellows

Class of 2022
Bonnie Berger

Class of 2023
Lenore Cowen
Ali Pinar
Sivan Toledo
SIAG/ACDA Membership Demographics

<table>
<thead>
<tr>
<th>Date</th>
<th>Nonstudent Members</th>
<th>Student Members</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Jan-19</td>
<td>41</td>
<td>82</td>
<td>123</td>
</tr>
<tr>
<td>30-Jun-19</td>
<td>43</td>
<td>111</td>
<td>154</td>
</tr>
<tr>
<td>31-Dec-19</td>
<td>46</td>
<td>140</td>
<td>186</td>
</tr>
<tr>
<td>30-Jun-20</td>
<td></td>
<td>255</td>
<td></td>
</tr>
<tr>
<td>31-Dec-20</td>
<td></td>
<td>302</td>
<td></td>
</tr>
<tr>
<td>31-Dec-21</td>
<td></td>
<td>284</td>
<td></td>
</tr>
<tr>
<td>31-Dec-22</td>
<td></td>
<td>228</td>
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</tr>
</tbody>
</table>
### SIAG/ACDA Membership by Geography

<table>
<thead>
<tr>
<th></th>
<th>US</th>
<th>Non-US</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nonstudent</strong></td>
<td>100</td>
<td>27</td>
<td>137</td>
</tr>
<tr>
<td></td>
<td>27.4%</td>
<td>10.1%</td>
<td>37.5%</td>
</tr>
<tr>
<td><strong>Student</strong></td>
<td>159</td>
<td>69</td>
<td>228</td>
</tr>
<tr>
<td></td>
<td>43.6%</td>
<td>18.9%</td>
<td>62.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>259</td>
<td>106</td>
<td>365</td>
</tr>
<tr>
<td></td>
<td>71%</td>
<td>29%</td>
<td></td>
</tr>
</tbody>
</table>
SIAG/ACDA Membership by Gender

Nonstudents

- Woman: 25 (18.2%)
- Man: 104 (75.9%)
- Prefer Not to Disclose: 4 (2.9%)
- Not Indicated: 3 (2.2%)
- Nonbinary: 1 (<1%)

Students

- Woman: 68 (29.8%)
- Man: 139 (61%)
- Prefer Not to Disclose: 2 (<1%)
- Not Indicated: 18 (7.9%)
- Nonbinary: 1 (<1%)
SIAG/ACDA Membership by Employer Type

- Academia: 80 (67.2%)
- Laboratory: 17 (14.3%)
- Industry: 12 (10.1%)
- Other: 6 (5%)
- Government: 4 (3.4%)
**SIAG/ACDA Membership by Department Type**

- **Mathematics**
  - 27 members (49.1%)

- **Computer Science**
  - 24 members (43.6%)

- **Op Research**
  - 1 member (1.8%)

- **Engineering**
  - 2 members (3.6%)

- **Other**
  - 1 member (1.8%)
SIAG/ACDA Conference History

**2021:** July 19-21; joint with AN21; virtual

OC co-chairs: Bruce Hendrickson, Blair D. Sullivan
PC co-chairs: Michael Bender, John Gilbert
421* attendees indicated interest in ACDA during registration (including AN+ACDA)

**2023:** May 31-Jun 2; joint with OP23; Seattle

OC co-chairs: Lenore Cowen, Uwe Naumann
PC co-chairs: Jonathan Berry, David Shmoys
202++* attendees indicated interest in ACDA during registration
*35 ACDA-only + 168 ACDA+OP + 200 currently un-labelled additional registrations since May 5
2023 SIAG/ACDA

ACDA23 Program Committee Report

Jonathan Berry, Sandia National Laboratories
David Shmoys, Cornell University
SIAG/ACDA ACDA23 Highlights (May 31 – Jun 2, 2023)

SIAG/ACDA Early Career Prize: Nate Veldt (Texas A&M University), Generalized Hypergraph Cut Algorithms and Their Applications (today at 9:15am)

6 Plenary Presentations (jointly/aligned with OP23)

21 Proceedings Papers (⇒ “Best Paper” Award)

Poster Session (today at 6:30pm ⇒ “Best Poster” Award)

26 Contributed Presentations (⇒ “Best Student Presentation” Award)

Business Meeting (tomorrow at 6:30pm).

Minitutorial: Sergei Vassilvitskii (Google), Beyond Worst Case Analysis (today at 4:30pm)
SIAG/ACDA ACDA23 Submission Formats

- Submissions for Inclusion in an Archival Proceedings

- Submissions for Presentation without Inclusion in Archival Proceedings
  - Common submission format for both streams
  - At most 10-page extended abstract with appendices allowed
  - “Lightly” double-blind
  - Common decision/evaluation process
  - Papers without proceedings could be concurrent submissions (but not appeared)

- Submissions for Posters
SIAG/ACDA ACDA23 Submission Formats (with Statistics)

- Submissions for Inclusion in an Archival Proceedings
  - 21 papers accepted from among 48 submissions

- Submissions for Presentation without Inclusion in Archival Proceedings
  - Common submission format for both streams
  - At most 10-page extended abstract with appendices allowed
  - “Lightly” double-blind
  - Common decision/evaluation process
  - Papers without proceedings could be concurrent submissions (but not appeared)
    - 6 papers accepted from among 12 submissions

- Submissions for Posters
  - 10 posters accepted from among 16 submissions
SIAG/ACDA ACDA23 Best Student Presentation Finalists

- Jannick Borowitz, Engineering Fully Dynamic ΔΔ-Orientation Algorithms.
- Shangdi Yu, Faster Parallel Exact Density Peaks Clustering.
- Xiaojun Dong, Provably Fast and Space-Efficient Parallel Biconnectivity.
- Hunter McCoy, Singleton Sieving: Overcoming the Memory/Speed Trade-Off in Exascale K-Mer Analysis
Xiaojun Dong
Provably Fast and Space-Efficient Parallel Biconnectivity
SIAG/ACDA ACDA23 Best Poster Award

Ishan Bansal
Extending Primal-Dual Methods for Edge Connectivity
SIAG/ACDA ACDA23 Program Committee

Jonathan Berry, Sandia National Laboratories, U.S. (co-chair)
David Shmoys, Cornell University, U.S. (co-chair)
Martin Bücker, Friedrich-Schiller-Universität Jena, Germany
David Bader, New Jersey Institute of Technology, U.S.
Michael Bender, SUNY Stony Brook, U.S.
Anne Benoit, ENS Lyon, France
Dan Bienstock, Columbia University, U.S.
Sarah Cannon, Claremont McKenna College, U.S.
Lenore Cowen, Tufts University, U.S.
Martin Farach-Colton, Rutgers University, U.S.
Maryam Fazel, University of Washington, U.S.
Sándor Fekete, Technische Universität Braunschweig, Germany
Xin Gao, King Abdullah University of Science and Technology, Saudi Arabia
Assefaw Gebremedhin, Washington State University, U.S.
Phil Gibbons, Carnegie Mellon University, U.S.
John Gilbert, University of California, Santa Barbara, U.S.
Andrew Goldberg, Amazon, U.S.
Giulia Guidi, University of California, Berkeley, U.S.
Swati Gupta, Georgia Institute of Technology, U.S.
Kathrin Hanauer, University of Vienna, Austria
Bruce Hendrickson, Lawrence Livermore National Laboratory, U.S
Dorit Hochbaum, University of California, Berkeley, U.S.
Paul Hovland, Argonne National Laboratory, U.S.
Rob Johnson, VMware Research, U.S.
Jeremy Kepner, Massachusetts Institute of Technology, U.S.
Smita Krishnaswamy, Yale University, U.S.
Kamesh Madduri, Pennsylvania State University, U.S.

Fredrick Manne, University of Bergen, Norway
Samuel McCauley, Williams College, U.S.
Nicole Megow, University of Bremen, Germany
Ben Moseley, Carnegie Mellon University, U.S.
Eisha Natha, Lawrence Livermore National Laboratory, U.S
Uwe Naumann, RWTH Aachen University, Germany
Richard Peng, Georgia Institute of Technology, U.S.
Cynthia Phillips, Sandia National Laboratories, U.S.
Alex Pothen, Purdue University, U.S.
Emilie Purvine, Pacific Northwest National Laboratory, U.S.
Ted Ralphs, Lehigh University, U.S.
Julian Shun, Massachusetts Institute of Technology, U.S.
Aravind Srinivasan, University of Maryland, College Park, U.S.
Cliff Stein, Columbia University, U.S.
Blair Sullivan, University of Utah, U.S.
Adrian Tate, NAG, United Kingdom
Shang-Hua Teng, University of Southern California, U.S.
Denis Trystram, Grenoble Institute of Technology, France
Fabio Vandin, University of Padova, Italy
Santosh Vempala, Georgia Institute of Technology, U.S.
Rich Vuduc, Georgia Institute of Technology, U.S.
Andrea Walther, Humboldt Universität Berlin, Germany
Jean-Paul Watson, Lawrence Livermore National Laboratory, U.S.
David Woodruff, Carnegie Mellon University, U.S.
Shenghao Yang, University of Waterloo, Canada
SIAG/ACDA Conference 2023

Organizing Committee Co-Chairs

Lenore Cowen, Tufts University, U.S.
Uwe Naumann, RWTH Aachen University, Germany

Organizing Committee

Anne Benoit, ENS Lyon, France
Dorit Hochbaum, University of California, Berkeley, U.S.
Fredrik Manne, University of Bergen, Norway
Cynthia Phillips, Sandia National Laboratories, U.S.
Adrian Tate, NAG, United Kingdom
Shang-Hua Teng, University of Southern California, U.S.
2023 SIAG/ACDA
Other SIAG Activities
SIAG/ACDA Early Career Prize

2023: Nate Veldt, Texas A&M University
Generalized Hypergraph Cut Algorithms and Their Applications
Wednesday, May 31st, 9:15 AM – 10:45 AM PDT

2025: Nominate Early-Career Colleagues!!
Deadline will be in October 2024
Nominees must be SIAG/ACDA members within 6 years* of PhD as of Jan 1 of award year

* Exceptions possible for career interruptions or delays due to e.g. child rearing, elder care, etc.
SIAG/ACDA Online Seminar Series

- Steering committee
  - Anne Benoit, ENS de Lyon, France
  - Julian Shun, MIT, USA
  - Uwe Naumann, RWTH Aachen University, Germany
  - Bora Ucar, ENS de Lyon, France (since 01/23; was Blair D. Sullivan, University of Utah until 12/22);

- Members serve two year staggered terms
- Planned recruitment of three new members by end of 2023
SIAG/ACDA Online Seminar Series

So far,

- **Katherine Yelick** (UC Berkeley, Lawrence Berkeley National Laboratory, USA)
  Genomic Analysis at Scale: Mapping Irregular Computations to Advanced Architectures
  Dec 16, 2021

- **Monika Henzinger** (University of Vienna, Austria)
  Dynamic graph algorithms and their implementation
  May 25, 2022

- **Michael Bender** (Stonybrook University, USA)
  Online Parallel Paging & Green Paging
  Dec 14, 2022

- Next seminar planned in Late Summer / Autumn 2023

Q: How frequent should these be? How can we increase participation? Is this a good use of energy?
SIAG/ACDA Affiliated Workshops & Minisymposia/Tracks

So far,

- **CNRS Aussois Workshop**
  ACDA in Aussois, *September 2022*
  Organizers: Michael A. Bender, Aydin Buluç, and Bora Uçar

- **ICIAM Minisymposium**
  Applied & Computational Discrete Algorithms, *August 2023*
  Organizers: Alex Pothen, Bora Uçar

- **Dagstuhl Seminar**
  Discrete Algorithms on Modern & Emerging Compute Infrastructure, *May 2024*
  Organizers: Kathrin Hanauer, Uwe Naumann, Alex Pothen, Rob Schreiber

- **Your workshop here?**
  *Please contact officers if you need help identifying possible co-organizers for a proposal!*
2023 SIAG/ACDA

Other SIAG Activities
SIAG/ACDA  Ways to Connect

- Twitter: @siam_acda
- SIAM Engage:
  - https://engage.siam.org/communities/siag-acda-home?CommunityKey=c9ac6d6c-1d32-4553-ac80-d2c84dd9aa54
- SIAG/ACDA websites:
  - https://www.siam.org/membership/activity-groups/detail/applied-and-computational-discrete-algorithms
SIAG/ACDA Get Involved!

- Organize an ACDA-related workshop or minisymposium!
- Help our work be featured in SIAM News:
  - Story Ideas?
  - Want to be the SIAG liason? Please contact me!
- Volunteer – let us know if there's something you'd like to do!
- SIAG/ACDA Leadership Suggestion Form:
  - [https://www.siam.org/forms/siam-activity-group-leadership-form](https://www.siam.org/forms/siam-activity-group-leadership-form)
- Nominate colleagues for prizes & honors!
  - SIAM Fellows Program (every year; next deadline: Oct. 2023)
  - SIAG/ACDA Early Career Prize (every 2 years; next deadline: Oct. 2024)
  - Polya Prize in Applied Combinatorics (every 4 years; next deadline: Oct. 2023)
    - *ACDA’s own Alex Pothen won this in 2021!*
2023 SIAG/ACDA
Discussion Topics
Future conference(s)?

(CO)-LOCATION?
DATES?
FREQUENCY?
SIAG/ACDA ACDA25 co-location possibilities

Annual Meeting (AN25)

Montreal, Quebec, Canada
July 28 – Aug 2
Anticipated paper deadline: March 2025?

Computational Science & Engineering (CSE25)

Fort Worth, Texas, USA
March 3-7
Anticipated paper deadline: October 2024?
Other SIAG Activities?

WHAT SHOULD WE BE DOING MORE OF?
IS THERE SOMETHING WE SHOULD NOT DO?
WHAT COMMUNITY NEEDS ARE UNMET?
Matters Arising
SIAG/ACDA Happy Birthday, John!

In honor of John Gilbert’s 70th Birthday (& retirement)
SIAG/ACDA Special Acknowledgment

In honor of Alex Pothen’s service to the community and SIAG
Contacts

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       sullivan@cs.utah.edu

Vice Chair  Michael Bender
             bender@cs.stonybrook.edu

Program Director  Bora Uçar
                 bora.ucar@ens-lyon.fr

Secretary  Kathrin Hanauer
           kathrin.hanauer@univie.ac.at