

# Let's start a SIAM Student Chapter @ TUM

## Agenda:

- What is SIAM?
- What are SIAM Student Chapters?
- What could be our SIAM Student Chapter?

29.06.2023

# Society for Industrial and Applied Mathematics (SIAM, [www.siam.org](http://www.siam.org))

- Founded in 1952
- International Community of +14500 members
- 500 involved organizations (academia, industry, government, military)
- Nonprofit organization
- Goals of SIAM:
  - To advance the application of mathematics and computational science to engineering, industry, science, and society.
  - To promote research that will lead to effective new mathematical and computational methods and techniques for science, engineering, industry, and society.
  - To provide media for the exchange of information and ideas among mathematicians, engineers, and scientists.
- Publisher of many journals and organizer of conferences in the field



## Mission

SIAM fosters the development of applied mathematical and computational methodologies needed in various application areas. Applied mathematics, in partnership with computational science, is essential in solving many real-world problems. Through publications, research and community, the mission of SIAM is to build cooperation between mathematics and the worlds of science and technology.

# SIAM Research Areas

Analysis and Partial Differential Equations		Applied Geometry	Applied Mathematics Education	Classical Applied Mathematics		Computational Science & Numerical Analysis	Control and Systems Theory
	Data Science	Discrete Mathematics and Theoretical Computer Science	Dynamical Systems, Nonlinear Waves		Financial Mathematics and Engineering	Geosciences and Mathematics of Planet Earth	
Imaging Science	Life Sciences		Linear Algebra	Mathematical Aspects of Materials Science		Optimization	Uncertainty Quantification



# SIAM Student Chapter

- Activity group supported by SIAM consisting of **students** and faculty
- **Interdisciplinary** with members from a variety of departments
- **Opportunities** to develop networks, share ideas, learn about career options, develop leadership skills, ..., outside the classroom
- 213+ Student chapters internationally (7 in Germany: Berlin, Heidelberg, Magdeburg, Aachen, Hamburg, Potsdam, Trier)
- Financially supported by SIAM with up to 500\$ yearly
- **Free membership** in SIAM (instead of 25\$)
- Chapter can include many kinds of different activities, e.g., lunch discussion, lectures, competitions, field trips

# SIAM Student Chapter: Examples

- @Massachusetts Institute of Technology (<https://web.mit.edu/siam/www/>)
  - “Cross-pollinating ideas in applied mathematics”
  - Seminars, Coffee hour, Distinguished Speaker Series, Courses, Lightning Talks + Lunch
- @RWTH Aachen (<https://blog.rwth-aachen.de/siamsc/>)
  - “if you get in touch with applied mathematics in your research and you are interested in an interdisciplinary exchange of ideas and knowledge, we would be very interested to share both with you!”
  - Field trips to industry, Seminars, Career Path Panel, Journal Club, Science Slam, Activity night, Collab with other chapters
- @Hamburg (<https://www.studentchapter-math.uni-hamburg.de>)
  - “to further the application of mathematics to industry and science, promote research efforts in mathematics and provide media for the exchange of information and ideas between mathematicians and other technical and scientific personnel.”
  - Collab of SIAM and GAMM (International Association of Applied Mathematics and Mechanics)

# SIAM @ TUM

Chair of Scientific Computing  
TUM School of Computation, Information and Technology  
Technical University of Munich

**Home**  
News +  
Job Offers / Student Projects +  
People +  
Teaching +  
Research +  
Further Activities +

Home

## Welcome to Informatics Chair 5 - Scientific Computing

Welcome to the Chair of Scientific Computing of TUM's Computer Science department in the TUM School of Computation, Information and Technology. Whether you step by to check a web page of our teaching program, whether you are interested in one of our various research activities, or whether you just want to visit the home of [Quartl](#) and [Müller-Lüdenscheid Publishers](#) ☺ – we hope that you quickly find what you are looking for. If not, please do not hesitate to contact any member of the SCCS team. See you again soon!



**Chair of Scientific Computing in Computer Science (SCCS)**  
Univ.-Prof. Dr.  
Hans-Joachim Bungartz  
Boltzmannstraße 3  
85748 Garching  
Germany

**SCCS Colloquium**  
07.06.2023  
**Hanady Gebzan: Pooling techniques in hybrid quantum-classical convolutional neural networks** →  
14.06.2023  
**Witold Mętal: Gaussian process models for wheel locomotion** →  
14.06.2023  
**Julie Vernet: Node-based Visual Programming of Initialization Routines for Earthquake Simulations** →  
[read more](#) →

**News**  
02.12.2022  
"Stairway to Impact Award" for Prof. Wil Schilders →  
31.03.2022  
Professor Wil Schilders is now a SIAM Fellow - congratulations! →

TUM

SCCS

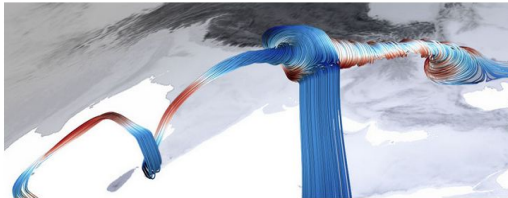
Department of Mathematics  
TUM School of Computation, Information and Technology  
Technische Universität München

**Startseite**  
Forschung –  
Forschungsgebiete +  
Forschungsgruppen –  
Analysis  
Analysis und ihre Anwendungen  
Analysis and Mathematical Biology  
Data Science  
Discrete Optimization  
Dynamische Systeme  
Mathematische Optimierung  
Multiskalen- und Stochastische Dynamik  
Numerical Analysis  
Numerische Methoden der Plasmaphysik  
Numerics of Partial

Startseite » Forschung » Forschungsgruppen » Numerical Analysis

Da wir uns ein internationales Publikum richten, ist diese Webseite nur auf Englisch verfügbar.

## Research group Numerical Analysis



[People](#) | [Research](#) | [Publications](#)

**At the Chair for Numerical Analysis at TUM we bring together an abstract mathematical theory and efficient computational methods to solve problems within real world applications from science and engineering.**

Our main research activities can be summarized within the three categories *Modelling and Analysis*, *Numerical methodologies and Simulation* and *HPC*. For more details and references about certain topics, please visit our individual [research-pages](#).

Numerical Mathematics  
Technische Universität München  
School of Computation, Information and Technology  
Boltzmannstraße 3  
85748 Garching bei München  
[Contact](#) (Office)  
[How to find us](#) ↓  
[Directions](#) ↓

TUM

Chair for Numerical Analysis

# SIAM @ TUM

- Boris Vexler
- Carolina Lasser
- Christina Kuttler
- Christian Kuehn
- Daniel Matthes
- Elisabeth Ullman
- Fabian Theis
- Faidon-Stelios Koutsourelakis
- Folkmar Bornemann
- Massimo Fornasier
- Michael Ulbrich
- Michael Bader
- Oliver Junge
- Will Schilders
- ...



# Poll

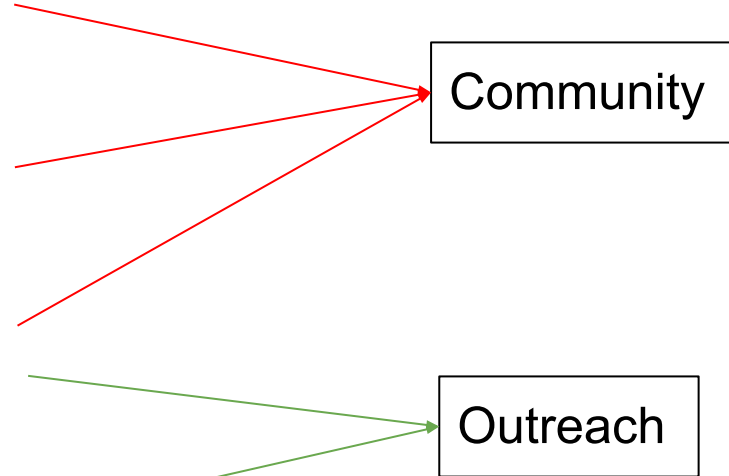


<https://www.mentimeter.com/app/presentation/al6np43pcnmfsv4oqmpme1fk8zef5okd>  
<https://www.menti.com/alrcstjq4ejv>



# Mission statements

- Establish a closely connected community of Applied Mathematicians and Computational Scientists in Munich.
- Intersperse mathematical ideas from an academic and an industrial perspective.
- Establish and foster a Centralized Scientific Open-Source Software community in Munich.
- Introduce new students (graduate or undergraduate) to the field of applied mathematics and computational science and engineering.



# More concretely...

- We are looking for ideas for activities that
  - Promote pursuing science as a collective
  - Improve soft-skills of members
  - Facilitate networking

# Ideas

## Community - 1

### Reading group



- 4 issues a year
- approx 5 articles per review
- spanning all SIAM research groups
- Opportunity to present work that is not your own

## Community - 2

### Invited Lectures

- Usually delivered from an expert in the field
- Once every semester
- Discipline and Exact contents of lecture is up for discussion



<https://nhigham.com/>

# Ideas

## Community - 3

### Student Research Groups

#### Thursday, March 2

8:15 a.m. – 8:30 a.m.

Poster Prizes

Auditorium

8:30 a.m. – 9:15 a.m.

IP7 The Data Behind Human Appearance and Motion: What are the MetaHumans?

Uros Sikimic, 3Lateral, Serbia

Auditorium

9:45 a.m. – 11:25 a.m.

MS275 Raising Mathematical Awareness via the SmartPool Project

Emerald Room

1:00 p.m. – 2:30 p.m.

PD4 Forward Looking Panel

Auditorium

2:35 p.m. – 4:15 p.m.

MS314 Student Chapter Presentations – Part I of II

D404

4:45 p.m. – 6:25 p.m.

MS348 Student Chapter Presentations – Part II of II

G106

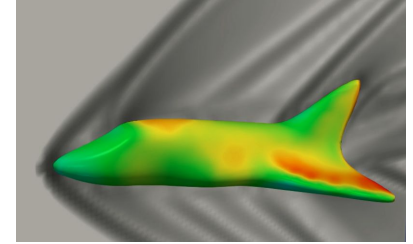
SIAM-CSE 2023

- Investigate problems that is within or outside your scope of research

- Topics up for discussion

## Community - 4

### Open Source Collaborations



Jax-Fluids

- Make barrier for entry as low as possible
- If you can no longer maintain your project
- Do not start your own project just for a JOSS paper.

# Ideas

## Outreach - 1

### **FAIR practices in research**

- Tutorials
- Sporadically organized upon request



## Outreach - 2

### **Open source software for the uninitiated**

- Tutorials
  - Version control
  - Software releases
  - Documentation
- Once every semester



# Ideas

Outreach - 3

## Undergraduate and Graduate Hackathons

- Once or Twice per semester depending on interest
- Topics up for discussion



Outreach - y

And more ...

# Organizational Committee

1. President
2. Vice President
3. Treasurer
4. Event Coordinators (optional)
5. Secretary (optional)

## By-Laws

- Term is for two (or maybe one?) years.
- Re-election is possible.
- An early termination of a normal term, requires a notice and transition period of six months.

## Call for Action

- Sign Up
- Consider if you want to serve on the organizational committee.
- Next: Official founding meeting with elections.

Website



Sign Up





# Questions & Discussions

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