Industry At-a-Glance

SIAM 2023 AMSTERDAM Conference on Computational Science and Engineering

February 27–March 3, 2023 • RAI Convention Centre, Amsterdam, Netherlands

Case Studies

The Role of Mathematics in Solving the World's Main Challenges
Community Lecture, Auditorium, March 1 at 8 p.m.

SIAM CSE 2023 Hackathon: Aftermovie and Prize Ceremony
Auditorium, February 28 at 8:15 a.m.

ECMI: Perspectives and Successes of Mathematical Challenges in Industrial Applications
MS295, MS328, Emerald Room, March 2 at 2:35 p.m. and 4:45 p.m.

Mathematics for Industry in the Asia Pacific Area
MS302, MS336, Room D408, March 2 at 2:35 p.m. and 4:45 p.m.

EU-MATHS-IN: Success Stories of Mathematical Technologies in Societal Challenges and Industry
MS120, Auditorium, February 28 at 2:15 p.m.
MS154, Auditorium, March 1 at 9:45 a.m.

Combustion

Models and Software for Multiscale Computational Chemistry
MS92, Room E101, February 28 at 9:45 a.m.

Computer Graphics

The Data Behind Human Appearance and Motion: What are the MetaHumans?
IP7, Auditorium, March 2 at 8:30 a.m.

Design & Manufacturing

Advances in Computational Modeling for Additive Manufacturing
MS144, MS179, Room E103, March 1 at 9:45 a.m. and 1:50 p.m.

Advances in Optimal Control and Shape Optimization Concerning Applications in Physics and Engineering
MS146, MS181, Room D508, March 1 at 9:45 a.m. and 1:50 p.m.

Digital Twins

Model Reduction for Nonlinear Control Systems Based on (Differential) Balancing and Data
IP1, Auditorium, February 27 at 8:30 a.m.

pyMOR - Model Order Reduction with Python
MT5, MT6, Room G103, March 1 at 9:45 a.m. and 1:50 p.m.

Digital Twins for Intelligent Dynamical Systems
MS153, MS186, Room G105, March 1 at 9:45 a.m. and 1:50 p.m.

Perspectives on Data-Driven Reduced-Order Modeling
MS237, MS273, Room E107, March 1 at 4:00 p.m. and March 2 at 9:45 a.m.

Machine Learning and Digital Twins
MS335, Room D506, March 2 at 4:45 p.m.

The Interplay of MOR and Optimization in Modern Scientific Computing
MS385, MS421, Room G111, March 3 at 9:20 a.m. and 11:30 a.m.

Data-Driven Dynamics and Model Reduction for Nonlinear Systems in Engineering
MS395, Room D304, March 3 at 11:30 a.m.

Electronics & Electrical Machines

Model Order Reduction of Multiphysical Finite Element Models in Microelectronics
MS18, Room D502, February 27 at 9:45 a.m.

AI-Driven Design and Optimization of Future Electronics
MS288, MS320, Room E107, March 2 at 2:35 p.m. and 4:45 p.m.

Computational Methods for Electric Machines
MS327, MS359, Auditorium, March 2 at 4:45 p.m. and March 3 at 9:20 a.m.

Life Sciences & Imaging

Epidemic Control using Group Testing, Compressed Sensing and Machine Learning
IP2, Auditorium, February 27 at 1:00 p.m.

Exploring Complexity in Life Sciences with Modeling and Simulations
MS10, MS42, Room D507, February 27 at 9:45 a.m. and 1:50 p.m.

Continues on reverse

Life Sciences & Imaging (continued)

Geometry and Shape Analysis for Neuroscience: Geometric Structures in Neuroscience
MS12, MS45, Room D408, February 27 at 9:45 a.m. and 1:50 p.m.

New Methods for Solving Inverse Problems in Imaging
MS55, Room E101, February 27 at 1:50 p.m.

Recent Advances in Inverse Problems for Computational Imaging
MS101, MS136, Room E105, February 28 at 9:45 a.m. and 2:15 p.m.

Multiresolution and Multilevel Optimization in Imaging
MS166, Room D504, March 1 at 9:45 a.m.

Shape and Size in Medicine, Biotechnology and Materials Science
MS173, MS209, Room G101, March1 at 9:45 a.m.

Mathware (CSE Software)

James H. Wilkinson Prize for Numerical Software: The BLAS-Like Library Instantiation Software
SP1, Auditorium, February 27 at 4:00 p.m.

Splitting Methods Revisited
IP4, Auditorium, February 28 at 1:00 p.m.

How Open-Source is Changing Scientific Computing in Industry and Research: Lessons Learned from 25 years of Deal.II
IP5, Auditorium, March 1 at 8:30 a.m.

Fast Solution Methods for Wave Propagation Problems: From Classical Domain Decomposition Solvers to Learning
IP8, Auditorium, March 3 at 8:30 a.m.

Plug-and-Play Multi-Physics Simulations With preCICE
MT7, MT8, Room G103, March 1 at 4:00 p.m. and March 2 at 9:45 a.m.

A Roadmap to Robust Science for High-throughput Applications: Use Cases and Lessons Learned
MS1, Emerald Room, February 27 at 9:45 a.m.

Computational Science at Extreme Scales
MS5, Room E106, February 27 at 9:45 a.m.

Lessons Learned in Scaling Science Codes to New Architectures
MS50, Room D502, February 27 at 1:50 p.m.

Advances and Challenges in Eigensolutions and Industrial Applications
MS143, MS178, Room D507, March 1 at 9:45 a.m.

Interfaces, Workflows, and Knowledge Graphs for FAIR CSE
MS301, MS333, Room G109, March 2 at 2:35 p.m. and 4:45 p.m.

Mobility

Data-Driven Mathematical Models for Traffic Flow
MS83, MS119, Room D508, February 28 at 9:45 a.m. and 2:15 p.m.

Scientific Machine Learning

AI for Science and the Implication for Mathematics
IP6, Auditorium, March 1 at 1:00 p.m.

Bayesian Scientific Computing and Probabilistic Programming: Inside and Outside the "Black Box"
MT3, MT4, Room G103, February 28 at 9:45 a.m. and 2:15 p.m.

A Hands-on Introduction to Geometric Deep Learning, with Examples in PyTorch Geometric
MT9, MT10, Room G103, March 2 at 2:35 p.m. and 4:45 p.m.

Integrating Scientific Simulations with Machine Learning Algorithms
MT11, MT12, Room G103, March 3 at 9:20 a.m. and 11:30 a.m.

Goal-Oriented and Context-Aware Scientific Machine Learning
MS13, MS46, Forum Centre, February 27 at 9:45 a.m. and 1:50 p.m.

Reduced Order Modeling of Differential Equations Through Deep Learning
MS28, MS64, Room G101, February 27 at 9:45 a.m. and 1:50 p.m.

Accelerating Computational Science and Engineering via Data-Driven Learning and Nonlinear Model Reduction
MS71, MS107, Room D502, February 28 at 9:45 a.m. and 2:15 p.m.

Advanced UQ with Challenging Models - Software and Methods
MS73, MS108, Room D507, February 28 at 9:45 a.m. and 2:15 p.m.

Neural Network Solvers for Differential Equations
MS93, MS126, Room E107, February 28 at 9:45 a.m. and 2:15 p.m.

MS214 Advances in Deep Neural Operators
MS214, MS249, Forum Centre, March 1 at 4:00 p.m. and March 2 at 9:45 a.m.

MS361 Data-Driven Predictive Modeling in Computational Science
MS361, MS397, Forum Centre, March 3 at 9:20 a.m. and 11:30 a.m.

Other

How to Give Good Talks
MT1, Room G103, February 27 at 1:50 p.m.

Cultivating a Culture of Inclusion
IP3, Auditorium, February 28 at 8:30 a.m.

Diversity Retention and Mentoring
PD1, Auditorium, February 28 at 11:30 a.m.

Early Career Scientist Panel: Wow I have a job! Now what?
PD2, Auditorium, March 1 at 11:30 a.m.

Mid-Career Scientist Panel: From Doing to Leading
PD3, Auditorium, March 2 at 11:30 a.m.

Forward Looking Panel
PD4, Auditorium, March 2 at 1:00 p.m.

SIAM Activity Group on CSE Best Paper Prize
SP2, Auditorium, February 27 at 4:30 p.m.

SIAM Activity Group on CSE Early Career Prize
SP3, Auditorium, February 27 at 5:00 p.m.

2023 SIAM/ACM Prize in CSE
SP4, Auditorium, February 27 at 5:30 p.m.

Legend
MS – Minisymposium
MT – Minitutorial
IP – Invited Plenary
PD – Panel Discussion
SP – Prize Ceremony