

SIAM[®] 21st FRONT RANGE Applied Mathematics Student Conference

About

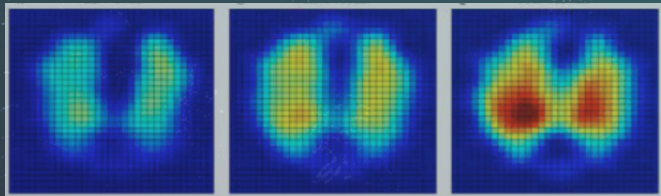
The Front Range SIAM Student Chapters are organizing the 21st Annual Applied Mathematics Regional Student Conference. This event allows students from all universities along the Front Range to learn about new developments in Applied Mathematics and promotes interest in the field.

The conference is open to *both* undergraduate and graduate students.

Registration Info

This will be an in-person conference. All speakers and conference attendees are kindly asked to fill out, in advance, a short online registration form, to keep you updated with any announcements, changes. To defray the cost of refreshments (breakfast and lunch), a small registration fee will be collected onsite the day of the conference, with those who register a week in advance receiving a reduced registration rate.

For more info and to register, please visit the website: <http://framsc.org>



UNIVERSITY OF COLORADO - DENVER
SATURDAY, MARCH 8TH, 2025

<http://framsc.org>



Call for Presentations

Students are encouraged to present their research to an audience consisting primarily of peer students. Presentations will be 20 min long. MCM/ICM teams are also invited to present. Please send abstracts in LaTeX (.tex) or plain text (.txt) format to FRAMSC.abstracts@gmail.com.

Abstract submission deadline is Friday, Feb 28th, 2025!

For more info, please check the conference website <http://framsc.org> or contact the SIAM faculty advisors below:

University of Colorado Boulder:

Dr. Anne Dougherty, anne.dougherty@colorado.edu
Dr. Stephen Becker, stephen.becker@colorado.edu

Metropolitan State University of Denver:

Dr. Henc Bouwmeester, hbouwmee@msudenver.edu
Dr. Brendan Fry, b fry2@msudenver.edu

University of Colorado Colorado Springs:

Dr. Radu Cascaval, radu@uccs.edu

Colorado College:

Dr. Jane McDougall, jmcdougall@coloradocollege.edu
Dr. Mihno Kim, mkim@coloradocollege.edu

University of Colorado Denver:

Dr. Emily Speakman, emily.speakman@ucdenver.edu

US Air Force Academy:

Dr. Maila Hallare, maila.hallare@afacademy.af.edu

Colorado School of Mines:

Dr. John Griesmer, griesmer@mines.edu

University of Wyoming:

Dr. Victor Ginting, vginting@uwyo.edu

Colorado State University:

Dr. James Liu, liu@math.colostate.edu

Keynote Speaker

Dr. Jennifer Mueller

Colorado State University



Imaging lung function in infants using electrical impedance tomography

Abstract: Electrical impedance tomography (EIT) is a relatively new medical imaging technique in which electric fields are used to form real-time images of organ function and structure. It is particularly suitable for imaging infants since it does not impart ionizing radiation. To form these images, it is necessary to solve a severely ill-posed inverse problem with computational efficiency. This talk will provide an introduction to EIT and the state-of-the-art for pulmonary imaging. Direct (non-iterative) and iterative reconstruction methods, including the D-bar method, a direct reconstruction algorithm based on techniques of inverse scattering, will be presented. Results from data collected on infants at Children's Hospital Colorado will demonstrate its potential for monitoring infants in the NICU.

Bio: Dr. Jennifer Mueller is the Albert C. Yates Chair Professor of Mathematics and a Professor of Biomedical Engineering at Colorado State University (CSU). She received her Ph.D. from the University of Nebraska-Lincoln in 1997, and was an NSF Postdoctoral Fellow at Rensselaer Polytechnic Institute before joining the faculty at CSU in 2000. She held the 3-year position of Professor Laureate in the College of Natural Sciences at CSU from 2020 through 2022. Her research encompasses development of new hardware, reconstruction algorithms, and clinical applications for electrical impedance tomography (EIT) and ultrasound computed tomography (USCT). Supported by the NIH, her work involves close collaborations with mathematicians, engineers, and physicians in the U.S. and abroad. Dr. Mueller serves as an Associate Editor for IEEE Transactions on Medical Imaging and is the co-founding editor of the journal Applied Mathematics for Modern Challenges. She is co-author with Samuli Siltanen of the book "Linear and Nonlinear Inverse Problems with Practical Applications", SIAM, 2012, and they are working on a new book: "Introduction to Inverse Problems: A Data Science Perspective".

