Kenneth Morgan Golden

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Education

B.A.	1980	Dartmouth College, Mathematics and Physics
M.S.	1983	New York University, Courant Institute, Mathematics
Ph.D.	1984	New York University, Courant Institute, Mathematics

Employment

1984−87	NSF Mathematical Sciences Postdoctoral Fellow, Rutgers University
1987−91	Assistant Professor of Mathematics, Princeton University
1991−96	Associate Professor of Mathematics, University of Utah
1996−17	Professor of Mathematics, University of Utah
2007−	Adjunct Professor of Biomedical Engineering, University of Utah
2017−	Distinguished Professor of Mathematics, University of Utah

Professional Summary

- **Biography:** Ken Golden's main research interests are in mathematics of sea ice, composite materials, polar ecosystems, statistical physics, and remote sensing. He's been on nineteen polar expeditions to obtain data that inform sea ice models, and given over 500 invited lectures on six continents, including four presentations to the U.S. Congress and over 60 keynote, plenary, and public lectures. Golden has won awards for teaching, mentoring, and science communication. His research has been covered by media around the world, including profiles in *Science*, *Scientific American*, *Physics Today*, and the BBC. He is a Fellow of the Society for Industrial and Applied Mathematics, cited for "extraordinary interdisciplinary work on the mathematics of sea ice," an Inaugural Fellow of the American Mathematical Society, a Fellow of the Electromagnetics Academy, and a Fellow of the Explorers Club.

- **Publications** in journals including *Science*, *Physical Review Letters*, *Annals of Probability*, *Nature Reviews Physics*, *Nature Geoscience*, *Geophysical Research Letters*, *Scientific Reports*, *Communications Physics*, *Communications in Mathematical Physics*, *Journal of Statistical Physics*, *Ecology Letters*, *Journal of Mathematical Physics*, *Proceedings of the Royal Society*, *Proceeedings of the American Mathematical Society*, *The Cryosphere*, *Journal of Geohysical Research*, *IEEE Transactions on Geoscience and Remote Sensing*, *Deep Sea Research*, *Annals of Glaciology*, *Antarctic Journal of the United States*, *Remote Sensing*, *Multiscale Modeling and Simulation*, *Journal of Biomechanics*, *Mechanics of Materials*, *Ecological Complexity*, *Journal of Fractal Geometry*, *Notices of the AMS*, *Communications on Pure and Applied Mathematics*, *Nonlinear Processes in Geophysics*, *Environmental Research Letters*, *Communications Earth & Environment*.

- **Visiting Positions:** Institut des Hautes Études Scientifiques (IHÉS), Stanford University Math Department, Università di Roma 1 Math Department, Università di Napoli Physics Department, Moscow Civil Engineering Institute, Université de Provence Aix-Marseille 1 Math Department, Universidade de Saõ Paulo Math Department, Instituto Nacional de Matemática Pura e Aplicada (IMPA), Rio de Janeiro, Hong Kong University of Science and Technology Mathematics and Physics Departments, and Université de Paris Nord Math Department.

- **Taught** over 60 classes since 1981 in introductory calculus and differential equations to over 8,000 undergraduates in science and engineering, and a broad range of advanced undergraduate and graduate courses including partial differential equations, statistical mechanics, functional analysis and spectral theory. I've developed classes at the undergraduate (beginning and advanced) and graduate levels on mathematics and climate, composite materials and homogenization, sea ice and life in extreme environments.

- **Mentored** 66 undergraduate researchers at the University of Utah from majors across the sciences and engineering, 19 Ph.D. and M.S. students, 11 postdoctoral fellows, and 21 high school students. Many of these students and postdocs have assisted in field experiments on sea ice in the Arctic and Antarctic.

- **Polar Expeditions:** Traveled to the polar regions nineteen times – seven to Antarctica and twelve to the Arctic; took data on sea ice properties and behavior to inform our mathematical models, and observed and studied new phenomena.

- **Antarctic expeditions:**

  1980 Summer voyage (January - March) aboard the US Coast Guard icebreaker *Polar Sea* into the multiyear pack ice in the western Weddell Sea.

  1994 Antarctic Zone Flux Experiment (ANZFLUX), winter voyage (July-August) aboard the US icebreaker *Nathaniel B. Palmer* into the first year pack ice in the eastern Weddell Sea.

  1998 Mertz Glacier Polynya Experiment, winter voyage (July) aboard the Australian icebreaker *Aurora Australis* – terminated due to serious engine fire after entering sea ice pack.

  1999 Mertz Glacier Polynya Experiment, winter voyage (July-August) aboard the *Aurora Australis*, in and near the Mertz Glacier polynya, Buchanan Bay, Antarctica.

  2007 Sea Ice Physics and Ecosystem Experiment (SIPEX), late winter − early spring voyage (September-October) aboard the *Aurora Australis*, off Wilkes Land, Antarctica.

  2010 McMurdo Sound Expedition – Tim Haskell's Field Camp, joint with Antarctica New Zealand, November-December; study area on first year sea ice about 20 km from Scott Base.

  2012 Sea Ice Physics and Ecosystem Experiment II (SIPEX II), late winter − early spring voyage (September-November) aboard the *Aurora Australis*, off the coast of East Antarctica.

- **Arctic expeditions:**

  2000-2004, 2007, 2011-2013 and **2016**. Studied sea ice in the Chukchi Sea off Utqiaġvik, Alaska (formerly Barrow), for 1-2 weeks during each of these ten years.

  2013 Instructor for University of Alaska Fairbanks course on field techniques in sea ice research, held in Utqiaġvik, Alaska and on nearby sea ice.

  2014 Study of Under-Ice Blooms in the Chukchi Ecosystem (SUBICE), six week expedition (May-June) into the Arctic sea ice pack aboard the US Coast Guard icebreaker *Healy*.

  2024 Arctic Mathpedition. With Jody Reimer, brought seven mathematics students, from high school to Ph.D., who were each involved in mathematical modeling of sea ice processes, to do field experiments on the physics and biology of sea ice in the Chukchi Sea off Utqiaġvik, Alaska (formerly Barrow), May 2024.

- **Research in High School and College:** Studied passive microwave images of Antarctic sea ice during senior year of high school (1975-76) at NASA Goddard Space Flight Center with Jay Zwally; participant in a 1975 NSF Summer Science Training Program at the Institute for Arctic and Alpine Research, University of Colorado, in the mountains west of Boulder. Conducted experiments on melting snow at high altitude, and assisted Andrew Millington in coring peat bogs to analyze pollen distributions for paleoclimatic reconstruction; modeled radar propagation in sea ice for remote sensing of ice thickness during college (1977-80) at the US Army Cold Regions Research and Engineering Lab (CRREL) with Steve Ackley.

- **Media coverage:** My research and polar expeditions have been covered by media in North and South America, the UK, Europe, Russia, the Middle East, Asia, and Australia, in over 70 newspaper, magazine, and online articles, including *Science*, *Scientific American*, *Physics Today*, *Eos*, *Wired*, *Popular Mechanics*, and the BBC. I've been interviewed about 30 times on radio, television, and online, and featured in videos produced by NSF, SIAM, NBC News, and the University of Utah.

Honors and Awards

- 2023 Calvin S. and JeNeal N. Hatch Prize in Teaching, University of Utah, $5,000
- 2022 – 24 Inaugural Recipient of the U. of Utah Presidential Societal Impact Scholar Award, $10,000; As part of the Impact Scholars program, presented my research in meetings with members of the U.S. Senate and House of Representatives and their staffs, Washington D.C., September 2023.
- 2014 Fellow of the Explorers Club[1]
- 2014 United States Coast Guard Arctic Service Medal
- 2013 Inaugural Fellow of the American Mathematical Society (AMS)
- 2013 Guest of Honor, Institut des Hautes Études Scientifiques (IHÉS) Gala, *Mathematics: Mind of the Earth*, hosted by the French Ambassador to the US, Pierre Hotel, New York City
- 2013 AMS-MAA-SIAM Gerald and Judith Porter Public Lecture, Joint Mathematics Meetings, San Diego
- 2012 University of Utah Distinguished Scholarly & Creative Research Award, $10,000
- 2012 Myriad Faculty Award for Research Excellence, University of Utah, College of Science, for fostering undergraduate research and providing learning experiences for students, $20,000
- 2011 Fellow of the Society for Industrial and Applied Mathematics (SIAM), for "extraordinary interdisciplinary work on the mathematics of sea ice"
- 2009 Houghton Lecturer, Department of Earth, Atmospheric and Planetary Sciences, MIT
- 2009 SIAM Invited Address, Joint Math Meetings (AMS-MAA-SIAM), Washington D.C.
- 2007 University of Utah Distinguished Teaching Award
- Presented my research on mathematics of sea ice and composite materials in the US Congress:
    1. 2003 AMS Exhibitor, Coalition for National Science Funding Exhibition and Reception
    2. 2007 Invited Speaker, Congressional Luncheon Briefing, on behalf of the AMS
    3. 2011 SIAM Exhibitor, Coalition for National Science Funding Exhibition and Reception
- 1996 Fellow of the Electromagnetics Academy, for "extraordinary accomplishments in electromagnetics"
- 1994 Faculty Fellow Award, University of Utah
- 1989 Excellence in Teaching Award, Princeton Engineering Council, Princeton University
- 1981−84 Hertz Foundation Fellow, NYU

[1] A multidisciplinary professional society founded in 1904 to advance field research and the scientific exploration of land, sea, air, and space. Members have included Neil Armstrong, Sir Edmund Hillary, Jane Goodall, Robert Peary and Walter Munk. Fourth math professor since 1904 elected as a member.

Research Grants

1988–90 NSF Grant DMS-8801673 (funded by NSF and AFOSR), Princeton University, "Macroscopic Properties of Random and Quasiperiodic Media," PI: K. M. Golden, $42,000.

1990–92 AFOSR Grant AFOSR-90-0203, Princeton University, "Macroscopic Properties of Random and Quasiperiodic Media," PI: K. M. Golden, $57,000.

1992–93 NSF Grant DMS-9204328 (funded by NSF and AFOSR), U. of Utah, "Mathematical Aspects of Materials Science," PI: K. M. Golden, $35,000.

1992–97 ONR Grant N00014-93-10141, U. of Utah, "Mathematical and Experimental Studies of the Electromagnetic Properties of Sea Ice," PI: K. M. Golden, co-PI: S. A. Johnson (Department of Bioengineering), $379,000.

1993–96 NSF Grant DMS-9307324 (Division of Mathematical Sciences), U. of Utah, "Analysis and Optimization of the Effective Properties of Inhomogeneous Materials," PI: K. M. Golden, co-PI: A. V. Cherkaev, $135,000.

1994–99 ONR Grant N00014-94-10958, U. of Utah, "Electromagnetic Behavior of Sea Ice Microstructure," PI: K. M. Golden, co-PI: S. A. Johnson, $181,000.

1996–00 NSF Grant DMS-9622367, U. of Utah, "Percolation in Composite Materials," PI: K. M. Golden, $72,000.

1997–01 ONR Grant N00014-93-10141, U. of Utah, "Electromagnetic and Acoustic Scattering in the Ocean Environment," PI: K. M. Golden, co-PI: E. Cherkaev, $185,000.

1997–01 NSF Grant OPP-9725038 (Office of Polar Programs), U. of Utah, "Percolation in Sea Ice," PI: K. M. Golden, $290,000.

2000–02 NSF Grant DMS-0076129, U. of Utah, "Critical Phenomena in Composite Media," PI: K. M. Golden, $35,000.

2002–03 NSF Grant DMS-0211211, U. of Utah, "Sixth International Conference on the Electrical Transport and Optical Properties of Inhomogeneous Media," PI: K. M. Golden, co-PI's: S. Blair (Dept. of Electrical and Computer Eng.), G. W. Milton (Dept. of Mathematics), C. Johnson (School of Computing), Z. V. Vardeny (Dept. of Physics), $37,000; Also funded by Army Research Office for $10,000.

2002–06 NSF Grant DAS-0222171 (Division of Atmospheric Sciences), U. of Utah and U. of Alaska Fairbanks, Collaborations in Mathematical Geosciences (CMG): "Microstructural Controls on Transport Processes in Geophysical Systems," with REU Supplement, PI: K. M. Golden, co-PI: H. Eicken (UAF), $733,000.

2005–09 NSF Grant DMS-0537015, U. of Utah, "Analysis and Computation of Electromagnetic Transport in Composite Materials," with REU Supplement, PI: K. M. Golden, co-PI: D. Dobson, $403,000.

2006–07 NSF Grant DMS-0629032, U. of Utah, "Electrical Transport and Optical Properties of Inhomogeneous Media (ETOPIM) Conference Traveler Funding," PI: G. W. Milton, co-PI's: K. M. Golden and Z. V. Vardeny (Dept. of Physics), $19,600.

2006–12 NSF Grant DMS-0602219, U. of Utah, "EMSW21-VIGRE: Vertical Integration in Mathematics at the University of Utah," PI: A. Bertram, co-PI: D. Dobson, Senior Personnel: F. Adler, E. Cherkaev, K. M. Golden, N. Korevaar, G. Savin, K. Schmitt, and P. Trapa, $3,500,000.

Research Grants (continued)

2009–13 NSF Grant ARC-0934721 (Arctic Natural Sciences), U. of Utah and U. of Alaska Fairbanks, Collaborations in Mathematical Geosciences (CMG): "Mathematics and Electromagnetics for Monitoring Transport Processes in Sea Ice," PI: K. M. Golden, co-PI's: Hajo Eicken, Elena Cherkaev, Jingyi Zhu, Senior Personnel: Cynthia Furse, $850,000.

2010–11 University of Utah Research Instrumentation Grant, "Climate Change and Electromagnetic Monitoring of Sea Ice Processes" (portable network analyzer and DC resistance meters for laboratory and polar field measurements), PI: K. M. Golden, $29,960.

2010–13 NSF Grant DMS-1009704, "Phase Transitions in Composite Media," PI: K. M. Golden, $307,000.

2010–16 NSF Grant DMS-0940249, "Collaborative Research: Mathematics and Climate Change Research Network," PI's: C. Jones, UNC, Chapel Hill; D. Camp (Cal Poly, San Luis Obispo), C. Danforth (U. Vermont), I. Fung (UC Berkeley), K. M. Golden (U. Utah), D. Holland (NYU), E. Kostelich (Arizona State U.), R. McGehee (U. Minnesota), R. Pierrehumbert (U. Chicago), M. Silber (Northwestern), K. K. Tung (U. Washington), and M. L. Zeeman (Bowdoin). $5,000,000 (total for the 12 grants).

2012–13 ONR Grant N00014-12-10861, Applied and Computational Analysis Program, "Spectral Theory of Advective Diffusion in the Ocean," PI: K. M. Golden, co-PI's: N. B. Murphy and J. Zhu, $50,000.

2012–15 ONR Grant N00014-13-10291, Arctic and Global Prediction Program, "Multiscale Models of Melting Arctic Sea Ice," U. of Utah and the U.S. Army Cold Regions Research and Engineering Laboratory (CRREL), PI: K. M. Golden, co-PI's: D. K. Perovich, C. Strong and B. Alali, $628,206.

2014–15 NSF Grant DMS-1434212, "Conference Proposal: Thirteenth International Conference on Continuum Models and Discrete Systems," U. of Utah, PI: K. M. Golden, co-PI's: A. Cherkaev, Y. Epshteyn, G. W. Milton (Dept. of Mathematics), $35,000.

2014–17 NSF Grant DMS-1413454, "Homogenization for Sea Ice," PI: K. M. Golden, co-PI's: E. Cherkaev (Dept. of Mathematics) and C. Strong (Atmospheric Sciences), $320,000.

2015 Pacific Institute for Mathematical Sciences Conference Grant, "Conference on the Mathematics of Sea Ice," PI: K. M. Golden, CA$20,000.

2015–16 ONR Grant N00014-15-1-2455, Applied and Computational Analysis Program, "Conference on the Mathematics of Sea Ice," PI: K. M. Golden, $25,000.

2017–18 ONR Grant N00014-18-1-2041, Applied and Computational Analysis Program, "Newton Institute Workshop on Multiscale Modeling for Ice Characteristics and Behavior," PI: K. M. Golden, $10,000.

2017–22 NSF Grant DMS-1715680, "Random Matrix Theory for Homogenization of Composites," PI: K. M. Golden, co-PI's: E. Cherkaev and T. Alberts, $353,794.

2018–19 University of Utah Research Instrumentation Grant, "Microbial Habitability within the Icy Moons of Jupiter and Saturn" (immersion freezer), with contributions from the College of Science and Dept. of Atmospheric Sciences, PI: K. M. Golden, $10,000.

Research Grants (continued)

2018–21 ONR Grant N00014-18-1-2552, Applied and Computational Analysis Program, "Multiscale Homogenization for Sea Ice," PI: K. M. Golden, co-PI's: E. Cherkaev (Dept. of Mathematics) and C. Strong (Atmospheric Sciences), $583,573.

2021–25 ONR Grant N00014-21-1-2909, Applied and Computational Analysis Program, "Partial Differential Equation Models for Sea Ice Processes," PI: K. M. Golden, co-PI's: E. Cherkaev (Dept. of Mathematics) and C. Strong (Atmospheric Sciences), $449,341.

2022–26 NSF Grant DMS-2206171, "Stieltjes Functions and Spectral Analysis in Sea Ice Physics," PI: K. M. Golden, co-PI's: E. Cherkaev, N. Benjamin Murphy, $538,098.

2022–27 NSF Grant DMS-2136198, "RTG: Optimization and Inversion for the 21st Century Workforce," PI: K. M. Golden, co-PI's: E. Cherkaev, F. Guevara Vasquez, C. Hohenegger, A. Narayan, Senior Personnel: T. Alberts, A. Cherkaev, A. Little, G. W. Milton, B. Osting, J. R. Reimer, B. Wang, $2,498,692.

2025–28 ONR Grant N00014-26-1-2114, Applied and Computational Analysis Program, "Multiscale Mathematics of Sea Ice Processes," PI: K. M. Golden, co-PI's: E. Cherkaev, N. B. Murphy and C. Strong (Atmospheric Sciences), $610,678.

Invited Keynote, Plenary, and Public Lectures

Selected from over 500 invited lectures since 1984. Talks listed below from 2014 and after are also included in the full list of invited lectures that follows.

1997 Plenary Address, Joint Assemblies of the Intl. Association for the Physical Sciences of the Oceans, and the Intl. Association of Meteorolgy and Atmospheric Sciences, Melbourne

2000 Plenary Address, Third SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia

2000 Distinguished Lecture Series in Mathematical and Physical Sciences, U.S. National Science Foundation, Washington D.C.

2001 Plenary Address, Hong Kong Mathematical Society, Hong Kong

2008 Keynote Address, International Polar Year (IPY) Forum, Society for Advancement of Chicanos and Native Americans in Science (SACNAS) National Conference, Salt Lake City, UT

2009 The SIAM Invited Address at the Joint Math Meetings (AMS, MAA, SIAM), Wash. D.C.

2009 Public Lecture on Climate Change and the Mathematics of Sea Ice, IPAM/UCLA

2009 Houghton Lectures on "Sea Ice, Climate, and Multiscale Composites," Department of Earth, Atmospheric and Planetary Sciences, MIT

2009 Kieval Lecture, Humboldt State University, Arcata, CA

2010 Plenary Lecture, Harvey Mudd College Annual Mathematics Conference: The Mathematics of Environmental Sustainability and Green Technology, Claremont, CA

2010 The Brown Symposium for Undergraduates in the Mathematical Sciences, Math and the Environment, Brown University, Providence, R.I.

2010 Plenary Science Lecture on Mathematics and Climate, Conference on Emerging Topics in Dynamical Systems and Partial Differential Equations, DSPDE's 10, SIAM, RSME (Real Sociedad Matemática Española), SCM (Societat Catalana de Matemátiques) and SEMA (Sociedad Española de Matemática Aplicada), Barcelona

2011 Public Lecture, Conference on Probability Theory, Statistical Physics, and Applications, NYU Abu Dhabi, United Arab Emirates

2011 Simon Fraser University Seminar Series on Global Warming, a Scientific Perspective, Invited Public Lecture on Evidence for Warming in the Arctic and Antarctic, Burnaby, Canada

2011 Public Lecture on Climate Change and the Melting Polar Ice Caps, Antarctic Lecture Series, University of Utah Marriott Library, Salt Lake City

2011 Plenary Address, Spring Eastern Sectional Meeting of the American Mathematical Society, College of the Holy Cross, Worcester, MA

2011 Keynote Address, Annual Conference of the American Mathematical Association for Two-Year Colleges, Austin, TX

2011 Neal Thorpe Memorial Lecture, Twentieth Regional Conference on Undergraduate Research, Murdock Charitable Trust, Seattle

2012 Public Lecture, Pacific Institute for the Mathematical Sciences, Vancouver

2012 Plenary Lecture, Ninth International Conference on Electrical Transport and Optical Properties of Inhomogeneous Media (ETOPIM9), Marseille

2013 MAA-AMS-SIAM Gerald and Judith Porter Public Lecture, Joint Mathematics Meetings, San Diego

2013 College of Science Invited Public Lecture, Weber State University, Ogden, UT

2013 Focus on Mathematics, Brigham Young University, Provo, UT

2013 IMA Public Lecture, Institute for Mathematics and its Applications, University of Minnesota, Minneapolis

2013 Distinguished Lecturer Series, Inaugural Lecture, Department of Mathematics, University of Memphis, TN

2013 Christie Public Lecture, co-hosted by the Department of Mathematics and the Bowdoin College Museum of Art, coinciding with an exhibition April 4, 2013 - June 2, 2013, entitled, "Sense of Scale, Measure by Color: Art, Science, and Mathematics of Planet Earth," featuring paintings and sculpture by Per Kirkeby, images of rocks, some of my Antarctic sea ice photos, and other ice images. Bowdoin College, Maine

2013 First SIAM Public Lecture, Department of Mathematical Sciences, Florida Institute of Technology, Melbourne, FL

2013 Distinguished Lecture Series, California COSMOS Summer High School Program, UC Davis

2013 Inaugural Bernoulli Society Public Lecture, 36th Conference on Stochastic Processes and their Applications, Boulder

2013 G. Milton Wing Lectures, University of Rochester, Rochester, NY

2013 Public Lecture, University of North Carolina, Chapel Hill

2013 Guest of Honor and Presenter, Institut des Hautes Études Scientifiques (IHÉS) Gala, Theme of *Mathematics of Planet Earth 2013*, New York City

2013 Keynote Speaker, Mathematics of Planet Earth 2013, Platform for Mathematics in The Netherlands, Utrecht

2014 Science at Breakfast, College of Science, University of Utah, Salt Lake City

2014 Math Encounters, Public Presentation Series (sponsored by the Simons Foundation), National Museum of Mathematics, New York City

2014 Public Lecture, 13^{th} Continuum Models and Discrete Systems Symposium, Salt Lake City

2015 Public Lecture, National Festival of Mathematics, Smithsonian Institution, Washington D.C.

2015 Plenary Lecture, *PIMS Conference on the Mathematics of Sea Ice*, Pacific Institute for the Mathematical Sciences (PIMS), Vancouver

2016 Carl J. Rees Distinguished Lecture, College of Arts and Sciences, and Mathematics Department Rees Colloquium, University of Delaware, Newark, DE

2016 Boeing Distinguished Colloquium in Applied Mathematics, University of Washington, Seattle

2017 ICERM Public Lecture, NSF Institute for Computational and Experimental Research in Mathematics, Brown University, Providence, RI

2017 Plenary Speaker, SIAM Annual Meeting, Pittsburgh

2018 Friends of Math Lecturer, Kansas State University, Manhattan, KS

2018 Keynote Lecture, Advanced Composite Materials Congress 2018, Stockholm

2018 Mathematics Public Lecturer, Celebration of Science for Dartmouth's 250th Anniversary, Dartmouth College, Hanover, NH

2019 Community Talk, Workshop on *Mathematical Models For Pattern Formation*, Carnegie Mellon University, Pittsburgh

2020 Opening Keynote Lecture, Simons Math + X Symposium on Inverse Problems and Deep Learning, Mitigating Natural Hazards, Guanacaste, Costa Rica

2021 Frontiers of Science Lecture, University of Utah (online)

2021 Palo Alto University Rotary Club Environmental Impact Public Lecture (online)

2021 Plenary Lecture, 49th International Summer Conference on Advanced Problems in Mechanics, St. Petersburg, Russia (online)

2022 Opening Plenary Speaker, Workshop on Mathematics of Sea Ice and Ice Sheets, Adelaide

2023 Math Across Campus Public Lecture, University of Washington, Seattle

2023 Distinguished Undergraduate Lecture, Michigan State University, East Lansing

2023 Wilkes Climate Summit: Science and Innovation to Accelerate Climate Solutions, Invited Opening Remarks on Science Day; Moderator of Arctic Panel, University of Utah

2023 Keynote Speaker, 2nd Annual California State University Mathematics Research Conference, Bakersfield

2024 Invited Panelist, Arts & Sciences in Dialog: Representing Antarctica & Climate Change, University of Utah, Salt Lake City

2024 Keynote Lecture, Mathematical Modelling in Continuum Mechanics, Joint Meeting of the New Zealand Mathematical Society, the Australian Mathematical Society, and the American Mathematical Society, Auckland

2025 Annual Julian Clancy Frazier Mathematics Public Colloquium Speaker, United States Naval Academy, Annapolis

2025 REDTalk, University of Utah 175th Anniversary Celebration, Salt Lake City

2025 Reid Public Lecturer, California State University San Marcos

2025 Keynote Lecture, Geomechanics of the Cryosphere, 18th US National Congress on Computational Mechanics (USNCCM18), Chicago

2025 Dresden Lecturer, Swarthmore College

2026 Distinguished Lecture, Intl. Seminar on Quantization, Geometry, and Dynamics (online).

2023, 2011, 2007, 2003. I presented my research on mathematics of sea ice and composite materials to members of the United States Senate and House of Representatives and their staffs. I've represented the American Mathematical Society, the Society for Industrial and Applied Mathematics, and the University of Utah in these meetings and presentations.

Invited Lectures since 2014

Selected from over 500 invited conference, university, and industry lectures since 1984.

2014 Invited Lecture, Special Session on *Fractal Geometry: Mathematics of Fractals and Related Topics*, Joint Mathematics Meetings, Baltimore
2014 Science at Breakfast, College of Science, University of Utah, Salt Lake City
2014 Invited Speaker, Inaugural KOzWaves Conference (Kiwi-Aussi Waves), Newcastle, Australia
2014 Invited Address, Session on *Physics of Climate*, American Physical Society, Denver
2014 Math Encounters, Public Presentation Series (sponsored by the Simons Foundation), National Museum of Mathematics, New York City
2014 International Glaciological Society Symposium, Hobart, Tasmania
2014 Minisymposium on *Mesoscale and nonlocal models of materials with microstructure*, SIAM Annual Meeting, Chicago
2014 Public Lecture, 13^{th} Continuum Models and Discrete Systems Symposium, Salt Lake City
2014 Lorentz Center Workshop on *Spatio-temporal dynamics in ecology*, Leiden, Netherlands
2014 Workshop on *Random matrix theory, algorithms & applications* at the Conference on Foundations of Computational Mathematics, Montevideo, Uruguay
2015 Invited Session on *Mathematics of Planet Earth* at the 2015 Joint Math Meetings, San Antonio, TX
2015 Public Lecture, National Festival of Mathematics, Smithsonian Institution, Washington D.C.
2015 Invited Lecture, 113th Rutgers Statistical Mechanics Conference, New Brunswick, NJ
2015 Invited Speaker, Frontiers in Applied and Computational Mathematics, Session on Pattern Formation in Geoscience, New Jersey Institute of Technology
2015 Lecturer (and organizer), American Mathematical Society Mathematics Research Community on Differential Equations, Probability, and Sea Ice, Two lectures: *Introduction to Sea Ice*, and *Mathematics of Sea Ice*, Snowbird, UT
2015 Invited Lecture, Session on *Mathematics and Observations of Earth Systems*, 26th International Union of Geodesy and Geophysics General Assembly, Prague
2015 Invited Lecture, Minisymposium on *Applied Dynamical Systems*, Univ. of Leiden, NL
2015 Minisymposium Lecture, *Mathematics of Climate: From the Tropics to Antarctica*, International Congress on Industrial and Applied Mathematics (ICIAM), Beijing
2015 Plenary Lecture, *PIMS Conference on the Mathematics of Sea Ice*, Pacific Institute for the Mathematical Sciences (PIMS), Vancouver
2015 Columbia University Chapter of the Society for Industrial and Applied Mathematics
2015 KOZWaves, The 2nd Australasian Conference on Wave Science, Adelaide, Australia
2016 Opening Invited Lecture, Special Session on Differential Equations, Probability and Sea Ice, Joint Mathematics Meetings, Seattle, Washington
2016 Invited Lectures (2), Workshop 2: *From the Grain to the Continuum: Two Phase Dynamics of a Partially Molten, Polycrystalline Aggregate*, Programme on *Melt in the Mantle*, Isaac Newton Institute for Mathematical Sciences, U. Cambridge, UK
2016 Carl J. Rees Distinguished Lecture, College of Arts and Sciences, and Mathematics Department Rees Colloquium, University of Delaware, Newark, DE
2016 Invited Lecture, Minisymposium on "Complex Analysis, Optimization, and Herglotz Functions in Passive Electromagnetics and Composite Media," SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia
2016 Invited Lecture, Minisymposium on "Inverse Problems in Materials Science" SIAM Conference on Mathematical Aspects of Materials Science, Philadelphia
2016 Invited Lecture, Session on *Fractal Geometry, Dynamical Systems, and Their Applications*, 11th AIMS Conf. on *Dynamical Systems, Differential Equations and Applications*, Orlando

2016 26th International Union of Pure and Applied Physics Conference on Statistical Physics, STATPHYS26, contributed lecture, Lyon, France
2016 37th Progress in Electromagnetics Research Symposium (PIERS), Shanghai, China
2016 Natural Sciences Colloquium, Colgate University, Hamilton, NY
2016 Boeing Distinguished Colloquium in Applied Mathematics, University of Washington, Seattle
2016 Fall American Geophysical Union Meeting, Special Session on *Integrating Observations and Models to Better Understand a Changing Arctic Sea Ice Cover*, San Francisco
2017 42nd Conference of the Middle European Cooperation in Statistical Physics, Lyon, France
2017 SIAM Conference on Computational Science and Engineering, Minisymposium on *New Approaches to Complex Coupled Multiscale Systems*, Atlanta
2017 ICERM Public Lecture, NSF Institute for Computational and Experimental Research in Mathematics, Brown University, Providence, RI
2017 Invited Lecture, Conference on Herglotz-Nevanlinna Functions and Their Applications, Mittag-Leffler Institute, Stockholm
2017 Invited Lecture, Memorial Conference in Honor of Joseph B. Keller, Stanford
2017 Invited Talk, Focus Session on "Metamaterials and Transformation Optics," Progress in Electromagnetics Research Symposium (PIERS2017), St. Petersburg, Russia
2017 Invited Plenary Speaker, SIAM Annual Meeting, Pittsburgh
2017 Future of Ice Seminar, Applied Physics Laboratory, University of Washington, Seattle
2017 Invited Speaker, Les Houches Summer School on *Fundamental Aspects of Turbulent Flows in Climate Dynamics*, Les Houches, France
2017 US-China Cooperative Workshop on *Impacts of a changing cryosphere on high elevation climate, weather, and aquatic ecosystems*, Qinghai Lake, China
2017 Invited Lecture, AMS Fall Southeastern Sectional Meeting, Special Session on *Fractal Geometry, Dynamical Systems, and Their Applications*, Orlando
2017 Invited Speaker, International Conference and Expo on Condensed Matter Physics, Valencia, Spain
2017 Invited Talk, Isaac Newton Institute Workshop on *Multi-scale modelling of ice characteristics and behaviour*, Cambridge University, UK
2017 Institute of Marine and Antarctic Studies, University of Tasmania, Hobart, Australia
2018 Guest Speaker, U. of Utah Research Administration NAKAMA Program, Salt Lake City
2018 KOZWaves, The 3rd Australasian Conference on Wave Science, Auckland, NZ
2018 Friends of Math Lecturer, Kansas State University, Manhattan, KS
2018 Session on *Mathematics of Planet Earth*, European Geophysical Union General Assembly 2018, Vienna
2018 Invited Lecture, Collaborative Conference on Nonlinear Optics, Amsterdam, Netherlands
2018 Keynote Lecture, Advanced Composite Materials Congress 2018, Stockholm
2018 Invited Lecture, Special Session on Mathematics of Planet Earth: Natural Systems and Models, The Joint International Meeting of the Chinese Mathematical Society and the American Mathematical Society, Shanghai
2018 Minisymposium on *Multiscale Solids and Homogenisation*, 10th European Solid Mechanics Conference, Bologna, Italy
2018 Minisymposium on *Applications of Herglotz-Nevanlinna Function Theory to Electromagnetics, Composites, and Dirichlet-to-Neumann Maps*, SIAM Conference on Mathematical Aspects of Materials Science, Portland
2018 Minisymposium on *New Approaches to Complex Coupled Multiscale Systems in Geosciences*, SIAM Conference on Mathematical Aspects of Materials Science, Portland
2018 Invited Lecture, Oberwolfach Workshop on *Calculus of Variations*, Germany

2018 Minisymposium on *Linking Scales in Earth's Sea Ice System*, SIAM Conference on Mathematics of Planet Earth, Philadelphia
2018 Mathematics Lecturer, Celebration of Science at Dartmouth, Dartmouth's 250th Anniversary, Dartmouth College
2018 Session on *Seasonal Sea Ice: Processes, properties, and linkages to ocean and atmospheric state across scales*, Fall American Geophysical Union Meeting, Washington, D. C.
2019 Community Talk, Workshop on *Mathematical Models For Pattern Formation*, Carnegie Mellon University, Pittsburgh
2019 Session on *Mathematics of Planet Earth*, European Geophys. Union Genl. Assembly, Vienna
2019 Invited Talk, Minisymposium on *Heteroclinic Attractors and Cyclic Competition of Species*, 2019 SIAM Conference on Dynamical Systems, Snowbird, UT
2019 Invited Speaker, Conference on *Mathematical Fluids, Materials and Biology*, University of Michigan, Ann Arbor
2019 Invited Speaker, 47th International Summer School - Conference on *Advanced Problems in Mechanics - 2019*, St. Petersburg
2019 Invited Talk, Minisymposium on *Multiscale analysis, modeling, and simulation for applications in materials science*, Intl. Congress on Industrial and Applied Mathematics, Valencia
2019 Invited Talk, Minisymposium on *Wave propagation in multiple-scattering and multiple-scale media*, Intl. Congress on Industrial and Applied Mathematics, Valencia
2019 Invited Speaker, Union Symposium on *Mathematics of Planet Earth: The Science of Data*, XXVII General Assembly, Intl. Union of Geodesy and Geophysics (IUGG), Montreal
2019 Invited Talk, Session on *The role of atmospheric dynamics in a changing sea ice cover*, Intl. Glaciological Society Symposium on Sea Ice, Winnipeg
2019 Invited Talk, 3CG Conference on Crystal Growth, Milan
2019 Workshop on Herglotz-Nevanlinna Theory Applied to Passive, Causal and Active Systems, Banff International Research Station for Mathematical Innovation and Discovery, Banff, CA
2019 Invited Talk, Collaborative Conference on Materials Science and Technology, Shanghai
2020 Opening Keynote Lecture, Simons Math + X Symposium on Inverse Problems and Deep Learning, Mitigating Natural Hazards, Guanacaste, Costa Rica
2020 KOZWaves, 4th Australasian Conference on Wave Sciences, Melbourne
2020 EGU2020: Sharing Geoscience Online (replaces European Geophysical Union General Assembly), Session on *Rapid changes in sea ice: processes and implications*, Vienna
2020 CARMA Workshop: Mathematics of Sea Ice and Ice Sheets, Newcastle, AU (online)
2020 Intl. Autumn School-Conf. on Advanced Problems in Mechanics, St. Petersburg (online)
2020 Center for Physics-Informed Learning Machines for Multiscale Multiphys. Problems Webinar
2021 Frontiers of Science Lecture, University of Utah (online)
2021 Rutgers Mathematical Physics Seminar, Rutgers University (online)
2021 Palo Alto University Rotary Club Environmental Impact Public Lecture (online)
2021 International Zoom Inverse Problems Seminar, University of California, Irvine (online)
2021 Plenary Lecture, 49th International Summer Conference on Advanced Problems in Mechanics, June, St. Petersburg, Russia (online)
2021 Invited Lecture, Perspectives on Climate Sciences, European Geosciences Union, Division on Nonlinear Processes in Geosciences (online)
2021 Invited Lecture, Minisymposium on *Advances in theory and appls. of composite materials*, 4th Annual Meeting of the SIAM TX-LA Section (TXLA21), South Padre Island, Texas
2022 Invited Lecture, Oberwolfach Institute Workshop on *Multiscale Coupled Models for Complex Media: From Analysis to Simulation in Geophysics and Medicine*, Oberwolfach
2022 Joint Operations Research & Financial Engineering and Program in Applied and Computational Mathematics Colloquium, Princeton University

2022 KOZWaves 2022 (contributed, online), Perth
2022 Antarctic Sea Ice and Southern Ocean Seminar Series (online), U. Texas San Antonio
2022 Invited Talk (online), Science Advisory Board of the Arctic Ice Project (arcticiceproject.org)
2022 Invited Speaker, Conference on Herglotz-Nevanlinna functions and their applications to dispersive systems and composite materials, Centre International de Rencontres Mathématiques, Marseille
2022 Minisymposium on *Multi-scale solids and homogenisation*, 11th European Solid Mechanics Conference, National University of Ireland, Galway
2022 Invited Speaker, Gordon Research Conference on Interactions Between Fluids, Elements, Materials, Energy and Life in Porous and Fractured Media, Les Diablerets, Switzerland
2022 Invited Talk, Workshop on Mathematics of Sea-Ice in the Twenty-First Century, Isaac Newton Institute, Cambridge
2022 Opening Plenary Speaker, Workshop on Mathematics of Sea Ice and Ice Sheets, Adelaide
2022 Invited Lecture, Oberwolfach Institute Workshop on Mathematical Advances in Geophysical Fluid Dynamics, Oberwolfach
2023 Math Across Campus Public Lecture, University of Washington, Seattle
2023 Distinguished Undergraduate Lecture, Michigan State University, East Lansing
2023 British Applied Math Colloquium, Invited Opening Overview Lecture, Sea Ice Minisymposium, Bristol, UK
2023 Invited Lecture, Minisymposium on *Patterns in Earth's climate system*, SIAM Conference on Applications of Dynamical Systems, (presented by Ph.D. student Julie Sherman due to time conflict), Portland
2023 Wilkes Climate Summit: Science and Innovation to Accelerate Climate Solutions, Opening Remarks on Science Day, Organizer and Moderator of Arctic Panel, University of Utah
2023 Invited Speaker, Special Session on *Fractal Geometry, Dynamical Systems, and Their Applications*, 13th AIMS Conference, Wilmington, NC
2023 Invited Lecture, Minisymposium on *Mathematical modeling for the geosciences, emphasizing methodological issues*, SIAM Geosciences Conference, Bergen, Norway
2023 Session on *Active and Reconfigurable Metasurfaces: Fundamentals and Applications*, PhotonIcs and Electromagnetics Research Symposium (PIERS), Prague
2023 Invited Talk, Minisymposium on *Geomechanics of the Cryosphere*, 17th US National Congress on Computational Mechanics, Albuquerque
2023 Invited Lecture, Minisymposium on *Recent Advances in Direct and Inverse Problems in Mathematical Materials Science*, International Congress on Industrial and Applied Mathematics (ICIAM), Tokyo
2023 Invited Talk, Minisymposium on *Modelling, Methods and Simulations for Environmental Problems*, 21st World Congress of the International Association for Mathematics and Computers in Simulations, Rome
2023 Invited Talk, University of Utah DC Alumni & Congressional Intern Evening, Carriage House, Washington D.C.
2023 Invited Talk, Special Session on Ergodic Theory and Dynamical Systems, Fall Southeastern Sectional Meeting of the AMS, University of South Alabama, Mobile
2023 Invited Lecture, Third Intl. Conf. on Carbon Chemistry and Materials (CCM-2023), Paris
2023 Keynote Speaker, 2nd Annual California State University Mathematics Research Conference, Bakersfield
2024 Invited Panelist, Arts & Sciences in Dialog: Representing Antarctica & Climate Change, University of Utah, Salt Lake City
2024 Invited Lecture, Applied Math Seminar, University of Delaware, Newark
2024 Invited Lecture, Rutgers Mathematical Physics Online Webinar

2024 Invited Speaker (Highlighted Lecture), Session on *Mathematics of Planet Earth: From Deterministic to Stochastic Dynamics and Predictability*, European Geophysical Union General Assembly, Vienna

2024 Invited Speaker, Minisymposium on *Emerging trends in multiscale modeling, analysis and simulation of problems in materials science*, SIAM Conference on Mathematical Aspects of Materials Science, Pittsburgh

2024 Invited Speaker, Geomechanics of the Cryosphere, 16th World Congress on Computational Mechanics, Vancouver

2024 Invited Speaker, Special Session on *Analysis, control and inverse problems in climate sciences*, 2nd Joint Meeting of the Unione Matematica Italiana and the American Mathematical Society, Palermo

2024 Invited Lecture, Fourth International Conference on Carbon Chemistry and Materials (CCM-2024), Barcelona

2024 University of Utah Math Department Colloquium on our NSF Arctic Mathpedition, with Jody Reimer, David Gluckman, Daniel Hallman, Anthony Jajeh, Anthony Lee, Kathy Lin, Marco Lozzi, Delaney Mosier, and Nash Ward, Salt Lake City

2024 Keynote Lecture, Mathematical Modelling in Continuum Mechanics, Joint Meeting of the New Zealand Mathematical Society, the Australian Mathematical Society, and the American Mathematical Society, Auckland

2025 Annual Julian Clancy Frazier Mathematics Colloquium Speaker, United States Naval Academy, Annapolis

2025 Invited Speaker, Materials Summit on the Future of Materials: Innovation and Impact, Boston

2025 Invited Speaker, Arctic Survival Roundtable, Second Annual Remote & Austere Condition Grand Challenge, University of Utah (postponed)

2025 REDTalk, University of Utah 175th Anniversary Celebration, Salt Lake City

2025 Reid Lecturer, California State University San Marcos

2025 Invited Speaker, Session on *Mathematics of Planet Earth*, European Geophysical Union General Assembly, Vienna

2025 Keynote Lecture, Geomechanics of the Cryosphere, 18th US National Congress on Computational Mechanics (USNCCM18), Chicago

2025 Invited Speaker, Minisymposium on *Emerging problems in multiscale modeling, analysis and simulation of problems in materials science*, SIAM Conference on Mathematical Aspects of Materials Science, Third Joint SIAM/CAIMS Annual Meetings (AN25), Montréal

2025 Invited Speaker, 2nd European Fluid Dynamics Conference, University College Dublin

2025 Invited Lecture, Special Session on *Fractal Geometry and Dynamical Systems*, 2025 AMS Southeastern Sectional Meeting, Tulane University, New Orleans

2025 Invited Lecture, 8th Biot Conference on Poromechanics (BIOT-8), Salt Lake City

2025 Invited Speaker, Contemporary Issues and Future Opportunities in Applied Mathematics, Brin Mathematics Research Center, University of Maryland, College Park

2025 Invited Lecture, 5th International Conference on Carbon Chemistry and Materials, Rome

2025 Dresden Lecturer (two lectures), Swarthmore College

2025 Invited Lecture, International Conference on Carbon Science and Technology – From Discovery to Applications (online), Prague

2025 Invited Lecture, Mechanical and Civil Engineering Seminar, Caltech

2026 Invited Lecture, KOZWaves 2026, The 7th Australasian Conference on Wave Science, Sydney

2026 Invited Lecture, Fractal Geometry and Dynamical Systems, SS01 (online)

2026 Invited Speaker for a Post-Show Panel, *Ushuaia Blue*, a play about Antarctic researchers, Weber State University, Ogden

2026 Distinguished Lecture, Intl. Seminar on Quantization, Geometry, and Dynamics (online)

2026 Invited Lecture, Seminar in Applied Mathematics, Stanford University
2026 Mathematics of Planet Earth, European Geophysical Union General Assembly, Vienna
2026 Applied Math Perspectives on Modeling, Analyzing, and Predicting Complex Geophysical Systems, Union Session, JpGU–AGU Joint Meeting, Chiba
2026 Invited Lecture, Mathematics Climate Research Network Colloquium (online)
2026 Invited Lecture, Belgrade School of Complex Systems, Petnica Science Center, Serbia
2026 Invited Lecture, Geomechanics of the Cryosphere, 17th World Congress on Computational Mechanics, Munich
2026 BIRS Workshop, The New Frontier of Herglotz-Nevanlinna Functions: Theory, Applications, and Open Problems, Banff
2026 MATRIX Workshop on Mathematical Modelling of Dynamic Processes in the Marginal Ice Zone, Victoria, Australia
2026 Keynote Lecture, C-Horizon: Carbon Science and Technology, Paris,

Invited Colloquium and Seminar Lectures since 1984

Aurora Australis - Australian Icebreaker while in the Antarctic pack ice ('99,'07,'12)

Antarctic Climate and Ecosystems Cooperative Research Centre, Hobart, Tasmania ('09)

Bell Labs ('84)

CalTech Applied Math Seminar ('91,'02)

Chinese University of Hong Kong ('98)

Columbia University ('90)

Columbia College Chicago, Science and Mathematics Colloquium ('08)

CRREL – US Army Cold Regions Research and Engineering Laboratory, NH ('79, '85, '87)

Courant Institute, New York University ('84, '89, '91, '93, '94, '97, '00, '05, '09)

Duke University ('87,'01)

École Normale Supérieure ('84)

École Supérieure de Physique et Chimie Industrielle ('96)

Georgia Tech ('95)

Harvard University Climate Seminar ('10)

Science Talk aboard US Coast Guard Icebreaker *Healy* in Arctic pack ice ('14)

Hong Kong University of Science and Technology ('97,'98,'01,'08,'16)

Instituto Nacional de Matemática Pura e Aplicada (IMPA), Rio de Janiero ('96)

Ioffe Physical Institute, St. Petersburg ('91)

Institute of Low Temperature Science, Hokkaido University, Sapporo, Japan ('08)

Leiden University, Math Department Colloquium, Netherlands ('18)

Los Alamos National Laboratory, Climate, Ocean and Sea Ice Modeling (COSIM) ('07,'09)

Lorentz Centre, Analysis Seminar, Leiden University, Netherlands ('15)

Loyola University, Colloquium Series on Applications of Mathematics ('14)

MIT Department of Earth, Atmospheric and Planetary Sciences Seminar (EAPS) ('08)

MIT Physical Applied Math Seminar ('09)

Moscow Civil Engineering Institute ('91)

National Space Development Agency of Japan, Tokyo ('98)

NASA/Goddard Space Flight Center, Greenbelt, MD ('07, '09)

Northwestern University ('08)

Oregon State University ('19)

Penn State University ('92, '00)

Princeton University, Departments of Mathematics ('87,'89), Physics ('87, '91, '96), Chemical Engineering ('89), Civil Engineering ('91, '96)

Roma Tre University, Dept. of Mathematics and Physics, Mathematical Physics Seminar ('15)

RPI ('93, '98)

Rutgers University, Mathematical Physics Seminar ('84,'86,'87,'95,'00,'09)

Rutgers University, Special Seminar ('22)

Rutgers University, Institute for Marine and Coastal Sciences Seminar ('09)

Schlumberger ('94)

Stanford University ('86,'96,'01,'09)

Tulane University ('02)

United States Naval Academy ('95, '25)

Universidade de Saõ Paulo ('95,'97)

Université de Paris Nord ('01)

Université de Provence ('93)

Université de Toulon ('92)

Université P. & M. Curie ('84)

University of Alaska, Fairbanks ('05)

University of Arizona, Applied Mathematics Colloquium ('95, '05)

University of California, Davis, Applied Math Seminar ('88, '91)

University of California, Davis, Special Fall Colloquium ('11)

UCLA, Applied Mathematics Seminar ('89, '98)

UCLA, Joint Atmospheric and Oceanic Sciences and Applied Math Colloquium ('09)

University of California, San Diego ('91)

University of Chicago, Mathematics ('89, '90, '00)

University of Chicago, Joint Geophysical Sciences and Mathematics Seminar ('08)

University of Delaware ('89)

University of Houston ('09)

University of Maryland, Center for Scientific Computation and Math. Modeling Seminar ('09,'12)

University of Minnesota ('90,'13)

University of Michigan ('91)

University of North Texas, Denton, Undergraduate Colloquium ('16)

University of Oregon, Corvallis, Mathematics Colloquium ('19)

University of Pennsylvania, Applied Math and Computational Science Colloquium ('10)

University of Reading, UK, Polar Research Group Seminar ('16, '19)

University of Tasmania, Dept. of Mathematics and Antarctic Cooperative Research Center ('97)

University of Texas, Austin ('09)

University of Utah: Department of Math ('91,'93,'01,'03,'08); Department of Geophysics Distinguished Lecture ('09); Mathematical Biology Seminar ('14), Physics ('97), Geophysics ('94), Materials Science ('91); College of Science Insider Tour Lecture ('08,'09); Science Night Live ('09), Science for the Community ('10); Global Change and Ecosystem Center (GCEC) Seminar ('12), High School Summer Math Program ('12,'13,'14,'16, '17).

University of Virginia ('91)

University of Washington ('99, '16)

US Coast Guard Icebreaker *Healy* in pack ice in the Arctic Ocean ('14)

Utah State University ('99)

Utah Valley University, Mathematics Colloquium ('19)

Virginia Tech ('85, '92)

Publications

1. S. F. Ackley, A. J. Gow, K. R. Buck and K. M. Golden, Sea ice studies in the Weddell Sea aboard USCGC *Polar Sea*, *Antarctic Journal of the United States*, 15, pp. 84–86, 1980.
2. K. M. Golden and S. F. Ackley, Modeling of anisotropic electromagnetic reflection from sea ice, *Journal of Geophysical Research C (Oceans)*, 86, pp. 8107–8116, 1981.
3. K. Golden and G. Papanicolaou, Bounds for effective parameters of heterogeneous media by analytic continuation, *Communications in Mathematical Physics*, 90, pp. 473–491, 1983.
4. G. W. Milton and K. Golden, Thermal conduction in composites, *Proceedings of the 18th International Thermal Conductivity Congress*, Rapid City, S.D., pp. 571–582, 1983.
5. K. Golden and G. Papanicolaou, Bounds for effective parameters of multicomponent media by analytic continuation, *Journal of Statistical Physics*, 40, pp. 655–667, 1985.
6. K. Golden, S. Goldstein and J. L. Lebowitz, Classical transport in modulated structures, *Physical Review Letters*, 55, pp. 2629–2632, 1985.
7. K. Golden, Bounds on the complex permittivity of a multicomponent material, *Journal of Mechanics and Physics of Solids*, 34, pp. 333–358, 1986.
8. S. F. Ackley, A. J. Gow, K. R. Buck and K. M. Golden, Physical and structural characteristics of Weddell Sea pack ice, Cold Regions Research and Engineering Laboratory (CRREL) Report 87–14, 70 pp., 1987.
9. K. Golden, S. Goldstein and J. L. Lebowitz, Nash estimates and the asymptotic behavior of diffusions, *Annals of Probability*, 16, pp. 1127–1146, 1988.
10. K. Golden, S. Goldstein and J. L. Lebowitz, Diffusion in a periodic potential with a local perturbation, *Journal of Statistical Physics*, 51, pp. 637–656, 1988.
11. K. Golden and S. Goldstein, Arbitrarily slow decay of correlations in quasiperiodic systems, *Journal of Statistical Physics*, 52, pp. 1113–1118, 1988.
12. K. Golden, Convexity in random resistor networks, in *Random Media and Composites*, R.V. Kohn and G.W. Milton (Eds.), Society for Industrial and Applied Mathematics, pp. 149–170, 1989.
13. K. Golden, S. Goldstein and J. L. Lebowitz, Discontinuous behavior of effective transport coefficients in quasiperiodic media, *Journal of Statistical Physics*, 58, pp. 669–684, 1990.
14. G. W. Milton and K. Golden, Representations for the conductivity functions of multicomponent composites, *Communications on Pure and Applied Mathematics*, 43, pp. 657–671, 1990.
15. O. Bruno and K. Golden, Interchangeability and bounds for the effective conductivity of the square lattice, *Journal of Statistical Physics*, 61, pp. 361–382, 1990.
16. K. Golden, Convexity and exponent inequalities for conduction near percolation, *Physical Review Letters*, 65, pp. 2923–2926, 1990.
17. K. Golden, Classical transport in quasiperiodic media, in *Proceedings of AMS-SIAM Summer Seminar on the Mathematics of Random Media*, Blacksburg, Va., June 1989, W. Kohler and B. White (Eds.), American Mathematical Society, pp. 359–373, 1991.
18. K. Golden and S. Goldstein, Arbitrarily slow approach to limiting behavior, *Proceedings of the American Mathematical Society*, 112, pp. 109–119, 1991.

19. K. Golden, Bulk conductivity of the square lattice for complex volume fraction, *International Series of Numerical Mathematics*, 102, pp. 71-83, 1991.

20. K. Golden, Exponent inequalities for the bulk conductivity of a hierarchical model, *Communications in Mathematical Physics*, 143, pp. 467-499, 1992.

21. K. Golden, Scaling law for conduction in partially connected systems, *Physica A*, 207, pp. 213–218, 1994, (special issue for *Proceedings of the Conference on Electrical Transport and Optical Properties of Inhomogeneous Materials, Mexico 1993*, refereed).

22. L. Berlyand and K. Golden, Exact result for the effective conductivity of a continuum percolation model, *Physical Review B*, 50, pp. 2114-2117, 1994.

23. K. M. Golden, Statistical mechanics of conducting phase transitions, *Journal of Mathematical Physics*, 36, pp. 5627-5642, 1995.

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26. V. I. Lytle and K. M. Golden, Microwave backscatter measurements from first year pack ice in the eastern Weddell Sea, *Antarctic Journal of the United States*, 30, pp. 125-127, 1995.

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28. K. M. Golden, Percolation models for porous media, in *Homogenization and Porous Media,* U. Hornung (Ed.), Springer - Verlag, pp. 27-43, 1997.

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37. R. Kwok, S. V. Nghiem, S. Martin, D. P. Winebrenner, A. J. Gow, D. K. Perovich, C. T. Swift, D. G. Barber, K. M. Golden, and E. Knapp, Laboratory measurements of sea ice: connections to microwave remote sensing, *IEEE Transactions on Geoscience and Remote Sensing*, 36(5), pp. 1716-1730, 1998.

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69. I. Sudakov, S. A. Vakulenko, D. Kirievskaya, and K. M. Golden, Large ecosystems in transition: Bifurcations and mass extinction (invited), *Ecological Complexity*, Vol. 32, pp. 209-216, 2017.

70. K. R. Steffen, Y. Epshteyn, J. Zhu, M. J. Bowler, J. W. Deming, and K. M. Golden, Network modeling of fluid transport through sea ice with entrained exopolymeric substances, *Multiscale Modeling and Simulation*, Vol. 16, No. 1, pp. 106–124, 2018.

71. E. A. Cherniavskaia, I. Sudakov, K. M. Golden, C. Strong, and L. A. Timokhov, Observed winter salinity fields in the surface layer of the Arctic Ocean and statistical approaches to predicting large-scale anomalies and patterns, *Annals of Glaciology*, Vol. 59, Issue 76pt2, pp. 83-100, 2018.

72. B. Bowen, C. Strong, and K. M. Golden, Modeling the fractal geometry of Arctic melt ponds using the level sets of random surfaces (invited), *Journal of Fractal Geometry*, Vol. 5, pp. 121-142, doi: 10.4171/JFG/58, 2018.

73. E. V. White, D. Fullwood, K. M. Golden, and I. Zharov, Percolation analysis for estimating the maximum size of particles passing through nanosphere membranes, *Physical Review E*, Vol. 99, 022904, 9 pp., 2019.

74. Y. Ma, I. Sudakov, C. Strong, and K. M. Golden, Ising model for melt ponds on Arctic sea ice, *New Journal of Physics* 21, 063029, 9 pp., 2019.

75. N. B. Murphy, E. Cherkaev, J. Zhu, J. Xin, and K. M. Golden, Spectral analysis and computation for homogenization of advection diffusion processes in steady flows, *Journal of Mathematical Physics*, Vol. 61, 013102, 34 pp., 2020.

76. C. Horvat, D. Flocco, D. Rees Jones, L. Roach, and K. M. Golden, The effect of melt pond geometry on the distribution of solar energy under first-year sea ice, *Geophysical Research Letters*, Vol. 47, 2019GL085956, 10 pp., 2020.

77. K. M. Golden, L. G. Bennetts, E. Cherkaev, I. Eisenman, D. Feltham, C. Horvat, E. Hunke, C. Jones, D. Perovich, P. Ponte-Castañeda, C. Strong, D. Sulsky, A. Wells, Modeling sea ice (invited), *Notices of the American Mathematical Society* 67(10), pp. 1535-1555 and issue cover, 2020.

78. K. M. Golden, Y. Ma, C. Strong, and I. Sudakov, From magnets to melt ponds, *SIAM News* 53(9), November 2020.

79. T. Lavergne, A. Sorensen, R. Tonboe, R. Saldo, L. T. Pedersen, C. Strong, E. Cherkaev, K. Golden, and S. Eastwood, Global Sea Ice Concentration Climate Data Records, Algorithm Theoretical Basis Document (OSI-450-a, OSI-430-a, OSI-458), Version 3.0, European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) Ocean and Sea Ice Satellite Application Facility (OSI SAF), 43 pp., August 2022.

80. D. Morison, N. B. Murphy, E. Cherkaev, and K. M. Golden, Order to disorder in quasiperiodic composites, *Communications Physics* 5, 148 (9 pp. and online cover), 2022.

81. J. R. Reimer, F. R. Adler, K. M. Golden, and A. Narayan. Uncertainty quantification for ecological models with random parameters, *Ecology Letters* 25(10), pp. 2232–2244, 2022.

82. A. F. Banwell, J. C. Burton, C. Cenedese, K. Golden, J. Åström, Physics of the cryosphere (invited), *Nature Reviews Physics* 5, pp. 446–449, 2023.

83. C. Rott, S. BenZvi, M. DuVernois, K. Golden, B. Jones, and C Toennis, DISCO: An optical instrument to calibrate neutrino detection in complex media, Proceedings of the 38th International Cosmic Ray Conference (ICRC2023), Nagoya, *Proceedings of Science* 444, PoS-ICRC2023-1139, 2023.

84. K. M. Golden, N. B. Murphy, D. Hallman, and E. Cherkaev, Stieltjes functions and spectral analysis in the physics of sea ice (invited), Special Issue on "Interdisciplinary perspectives on climate sciences – highlighting past and current scientific achievements," *Nonlinear Processes in Geophysics* 30, pp. 527-552, 2023.

85. K. M. Golden, The US prevailed in the Space Race of the 1960s — with STEM, we can win the 'Earth Race' too, *The Hill*, January 12, 2024.

86. N. Kraitzman, R. Hardenbrook, H. Dinh, N. B. Murphy, E. Cherkaev, J. Zhu and K. M. Golden, Homogenization for convection-enhanced thermal transport in sea ice, *Proceedings of the Royal Society A Mathematical, Physical & Engineering Sciences* 480(2296), 20230747 (22 pp. and issue cover), 2024.

87. C. Strong, E. Cherkaev, and K. M. Golden, Multiscale mushy layer model for Arctic marginal ice zone dynamics, *Scientific Reports* 14, 20436 (11 pp.), 2024.

88. J. Sherman, C. Strong, and K. M. Golden, Identifying fractal geometry in Arctic marginal ice zone dynamics, *Environmental Research Letters* 20(14), 044031 (10 pp.), 2025.

89. K. M. Golden, C. M. Furse, A. Gully, J. Lin, D. Q. Mosier, C. S. Sampson and J.–L. Tison, Percolation threshold for vertical fluid flow through granular sea ice, *Scientific Reports* 16, 11435, 2026.

90. D. Gluckman, T. Evans and K. M. Golden, Topography-albedo feedback and the transition to a younger Arctic ice pack, *Communications Earth & Environment*, accepted, 2026.

91. N. B. Murphy, D. Hallman, E. Cherkaev, J. Xin, and K. M. Golden, Spectral measures and iterative bounds for effective diffusivity of steady and space-time periodic flows, *SIAM Journal on Applied Mathematics*, in revision, 2026.

92. R. A. Moore, J. B. Jones, D. Gollero, C. Strong, R. Hardenbrook, and K. M. Golden, Topology of the sea ice surface and the geometric complexity of Arctic melt ponds (invited), *Physical Review Research*, in revision, 2026.

93. Extracellular polymeric substances and algal bloom dynamics in sea ice, A. R. Jajeh, K. M. Golden, J. W. Deming, J. R. Reimer, submitted, 2026.

Preprints

1. D. Hallman, N. B. Murphy, E. Cherkaev, and K. M. Golden, Scale, order, and spectral analysis in phononic metamaterials, 15 pp., `https://www.math.utah.edu/~golden/docs/publications/Hallman2026.pdf`.

2. C. Sampson, D. Hallman, N. B. Murphy, E. Cherkaev, and K. M. Golden, Bounds on the complex viscoelasticity for surface waves on ice-covered seas, arXiv.org/abs/2412.01112, 10 pp., 2 December 2024.

3. N. B. Murphy, D. Hallman, E. Cherkaev, and K. M. Golden, Spectral theory of effective transport for continuous uniaxial polycrystalline materials, arXiv.org/abs/2412.01105, 26 pp., 2 December 2024.

4. N. B. Murphy, D. Hallman, E. Cherkaev, and K. M. Golden, Spectral theory of effective transport for discrete uniaxial polycrystalline materials, arXiv.org/abs/2412.03447, 13 pp., 4 December 2024.

5. T. Evans, H. Dinh, K. George, N. B. Murphy, E. Cherkaev, C. Strong and K. M. Golden, Modeling anomalous diffusion and transport in sea ice dynamics, 7 pp., 2025.

6. K. M. Golden, H. Eicken, A. Gully, M. Ingham, K. A. Jones, J. Lin, J. Reid, C. S. Sampson, J. Sherman, and A. P. Worby, Electrical signature of the percolation threshold in sea ice, 26 pp., 2025.

7. K. McLean, E. Cherkaev, and K. M. Golden, Bounds on the complex permittivity of polycystalline sea ice with anisotropy in the horizontal plane, 10 pp., 2025.

Proceedings Edited

1. *Mathematics of Multiscale Materials*, K. M. Golden, G. R. Grimmett, R. D. James, G. W. Milton, and P. N. Sen (Eds.), *IMA Volumes in Mathematics and its Applications*, Vol. 99, 280 pp., Springer-Verlag, 1998.

2. *Proceedings of the Sixth International Conference on Electrical Transport and Optical Properties of Inhomogeneous Media, ETOPIM6*, G. W. Milton, K. M. Golden, D. Dobson, and Z. V. Vardeny (Eds.), *Physica B, Condensed Matter*, Vol. 338, Nos. 1-4, 374 pp., October 2003.

3. *Sea Ice in a Changing Environment, Proceedings of the 2014 International Glaciological Society Symposium, Hobart, Tasmania*, P. Heil, D. Lannuzel, G. Dieckmann, H. Enomoto, S. Gerland, K. M. Golden, S. Kern, P. J. Langhorne, P. Uotila, J. Renwick, R. A. Massom, S. Stammerjohn, and J. C. Stroeve (Eds.), *Annals of Glaciology*, Vol. 56, No. 69, 455 pp., October 2015.

4. *East Antarctic Sea-Ice Physics and Ecosystem Processes*, K. M. Meiners, K. M. Golden, P. Heil, J. Lieser, R. Massom, B. Meyer and G. D. Williams (Eds.), *Deep Sea Research Part II: Topical Studies in Oceanography*, Vol. 131, 202 pp., September 2016.

Video Productions on Polar Research Expeditions

1. *The Antarctic Zone Flux Experiment (ANZFLUX)*, by K. M. Golden, 1994.
2. *Voyage into the Antarctic Winter: The Mertz Glacier Polynya Experiment*, by K. M. Golden, with production assistance from Joe Prokop, Media Solutions, KUED (Public Television), University of Utah, 1999.
3. *SIPEX: The Sea Ice Physics and Ecosystem eXperiment*, by K. M. Golden, with production assistance from Gordon Jones, Media Solutions, KUED, University of Utah, 2008.
4. *Sea Ice Research at Tim Haskell's Field Camp, Antarctica New Zealand*, by K. M. Golden, with production assistance from Gordon Jones, Media Solutions, KUED, U. of Utah, 2011.
5. *SIPEX II: The Sea Ice Physics and Ecosystem Experiment II*, by K. M. Golden, with production assistance from Gordon Jones, 2013.
6. *Arctic Mathpedition 2024*, by K. M. Golden, Eric Thurman, and Marco Lozzi, 2025.

Service and Memberships

- Reviewed papers for journals in math, physics, engineering, and geophysics; reviewed proposals for NSF and other agencies in US and abroad; served on NSF panels and site reviews.

- Served as Modeling Coordinator (overseeing theoretical research) for Office of Naval Research Accelerated Research Initiative on Sea Ice Electromagnetics, 1992-98, with over 60 researchers at 20 institutions, including MIT, JPL/CalTech, U. of Washington, RPI, Ohio State, etc.

- Service to the University of Utah Mathematics Department:

  Faculty Hiring Committee ($1991-93, 1999-2001$)
  Executive Committee ($1992-96, 2002-04$)
  Coordinator for Engineering Math Classes ($1996-98$)
  Director of Undergraduate Studies ($2002-08$)
  Chair, Undergraduate Curriculum Committee ($2002-08$)
  Research Experiences for Undergraduates (REU) Program Coordinator ($2003-07$)
  Coordinator for Calculus Classes ($2003-05$)
  Instructorship Hiring Committee ($2008-09$)
  Engineering Math Committee ($2008-2012$)
  Undergraduate Curriculum Committee ($2008-2012$)
  Awards Committee ($2014-15$)
  Applied Math Research Committee ($2015-2017$)
  Chair, Faculty Hiring Committee ($2015-16$)
  Faculty Hiring Committee ($2017-2018$)
  Development Committee ($2017-2018$)
  Coordinator, Mathematics Week of ACCESS Program for First Year Undergraduate Women entering the University of Utah in Science, Math and Engineering (2018 – 2022)
  Scientific Computing and Imaging Institute (SCI) and Math Hiring Committee (2020 – 2021)
  COVID Task Force (2020 – 2021)
  Chair, Faculty Hiring Committee ($2021-22$)
  Chair, Faculty Hiring Committee ($2022-23$)
  Member, Awards Committee ($2023-24$)
  Member, Undergraduate Curriculum Committee ($2024-25$)
  Member, Awards Committee ($2025-26$)

- Service to the University of Utah:

  Member, University of Utah Academic Senate ($2000-03$)
  Member, Academic Senate Executive Committee ($2000-02$)
  Member, College of Science Dean's "Kitchen Cabinet" ($2007-10$)
  Member, Committee to Review the Department of Atmospheric Sciences, 2017
  Member, Executive Committee, Global Change and Sustainability Center ($2021-22$)
  Member, NSF Cohort Mentor Program ($2024-2025$)
  Member, University of Utah Academic Senate ($2025-28$)

- Editorial Boards:

  SIAM Journal on Applied Mathematics, 1996−99
  Applicable Analysis, 2004−08
  Mathematics of Planet Earth, Springer Book Series, 2014−

- Member of American Mathematical Society (AMS), Society for Industrial and Applied Mathematics (SIAM), American Geophysical Union (AGU), Intl. Glaciological Society (IGS), American Physical Society (APS), and Amer. Assoc. for the Advancement of Science (AAAS).

- Chair, Committee for Math Awareness Month April 2009, "Mathematics and Climate," Joint Policy Board for Mathematics (AMS, SIAM, ASA, MAA), https://ww2.amstat.org/mam/09/. Committee members: Kerry Emanuel (MIT), Inez Fung (UC Berkeley), Margot Gerritsen (Stanford), David Holland (NYU/Courant), Jon Huntsman, Jr. (Governor of Utah), David Neelin (UCLA), Mary Lou Zeeman (Bowdoin), Jay Zwally (NASA/Goddard).

- Chair, American Mathematical Society Committee on Science Policy, 2012−2013; Member at Large, 2010−2013.

- Member, American Mathematical Society Committee on Education, 2012−2013.

- Member, Joint Program Committee, 2013−2014, for the AMS-MAA Joint Mathematics Meetings in Baltimore, Maryland, January 2014.

- American Mathematical Society Representative to the AMS-MAA-SIAM *Gerald and Judith Porter Public Lecture* Committee, 2015–2018.

- Master of Ceremony, 2015 Institut des Hautes Études Scientifiques (IHÉS) Gala, *Math and Games of Chance*, Honored Guest Speakers: Ingrid Daubechies, Richard Garriott de Cayeux, hosted by the French Ambassador to the US, Pierre Hotel, New York City.

- Chair, AMS-MAA-SIAM *Gerald and Judith Porter Public Lecture* Committee, 2017–2018.

- Member, AMS–SIAM Committee to Select the Winner of the George David Birkhoff Prize, 2017–2018.

- Member, American Mathematical Society Mathematics Research Communities Advisory Board, 2020–2023

- 2021– , Mathematics Representative for activities related to *Sustainable development and climate change*, on behalf of the International Science Council (ISC, https://council.science) and the International Council for Industrial and Applied Mathematics (ICIAM, https://iciam.org), including inter-science, international panels and discussions on these issues.

Organizing Activities

1989−1991 Probability Theory Seminar, Princeton University Math Department

1993 Session on *Composites and Inhomogeneous Media*, AMS Meeting, April, Salt Lake City

1994 Workshop on *Modeling the Electromagnetic Properties of Sea Ice*, January, Hanover, NH

1994 Session on *Percolation Problems*, SIAM Materials Meeting, April, Pittsburgh

1995 Workshop on *Disordered Media and Percolation*, Inst. Math. Appl. (IMA), Nov., Minneapolis

1996 Workshop on *Sea Ice Electromagnetics*, January, Salt Lake City

1997 Session on *Inverse Problems for Composite Media*, SIAM Materials Conf., May, Philadelphia

1999 Session on *Electromagnetic Inverse Problems*, Fourth International Congress on Industial and Applied Mathematics, July, Edinburgh

2002 Co-Chair, Sixth International Conference on the *Electrical Transport and Optical Properties of Inhomogeneous Materials* (ETOPIM6), July, Snowbird, UT

2002 *Random Phenomena in Applied Mathematics*, Conference in Honor of George Papanicolaou's 60th Birthday, January, Stanford

2003 *Electrorheological Fluids*, European Mathematical Society (EMS) and French Mathematical Society (SMAI - SMF), February, Nice

2006 Member, International Organizing Committee for ETOPIM7, July, Sydney

2006 Member, ETOPIM Association Committee

2008−2010 Member, Advisory Board of NSF-funded SIAM-based *Climate Math Web Portal*

2009 Invited Minisymposium on *Polar Climate Modeling*, Joint Math Meetings (AMS, MAA, SIAM), January, Washington D.C.

2009 Member, International Organizing Committee for ETOPIM8, June Crete

2010 Invited Symposium on *Sea Ice in the Changing Climate: Modeling a Multiscale Nonlinear System* at the National Meeting of the American Assoc. for the Advancement of Science (AAAS), February, San Diego

2010 Invited Workshop on *Polar Climate*, IPAM Program on Model and Data Hierarchies for Simulating and Understanding Climate, May, Institute for Pure and Applied Mathematics, UCLA

2011 Invited Special Session on Mathematics and Climate, Spring Eastern Sectional Meeting of the American Mathematical Society, College of the Holy Cross, April, Worcester, MA

2011 Ocean Ecologies and their Physical Habitats in a Changing Climate, June 20 - July 1, Mathematical Biosciences Institute, Ohio State

2012 Member, Scientific Program Committee, *Ocean Sciences Meeting*, American Geophys. Union, The Oceanography Soc., American Soc. of Limnology and Oceanography, February, Salt Lake City

2014 Member, Scientific and Editorial Committees, International Glaciological Society Symposium, March, Hobart, Tasmania

2014 Member, Organizing Committee for the Thirteenth International Continuum Models and Discrete Systems Symposium, July, Salt Lake City, UT

2015 Lead Organizer, American Mathematical Society Mathematics Research Community (MRC) on *Differential Equations, Probability, and Sea Ice*, June, Snowbird, UT – with 39 graduate students and postdoctoral researchers. Co-Organizers: Mary Silber, Deborah Sulsky, Daniel Feltham, Daniela Flocco, and Court Strong.

2015 Chair, Organizing Committee for the *Conference on Mathematics of Sea Ice*, September, Pacific Institute for Mathematical Sciences (PIMS), University of British Columbia, Vancouver. Co-Organizers: Cecilia Bitz (University of Washington), Ian Eisenman (Scripps Inst. Oceanography, UCSD), Mike Meylan (Univ. of Newcastle, AU), Grae Worster (Cambridge University, UK)

2015 Co-Organizer of Minisymposium on *Mathematics of Climate: From the Tropics to Antarctica* with Sam Stechmann, International Congress on Industrial and Applied Mathematics (ICIAM), August, Beijing

2015 Co-Organizer of Session on *Planet Earth: Cryosphere, Climate, and the Environment* with Hans Kaper, 2015 SIAM Conf. on Mathematical & Comp. Issues in the Geosciences, July, Stanford

2016−2017 Member, Scientific Committee of the Isaac Newton Institute Programme on *Mathematics of Sea-Ice Phenomena*, Fall 2017, Cambridge University

2017 Chair, Organizing Committee for Workshop 1: *Multi-scale modelling of ice characteristics and behaviour*, as part of the Isaac Newton Institute Programme on *Mathematics of Sea-Ice Phenomena*, Fall, Cambridge University. Co-Organizers: Daniel Feltham (University of Reading, UK), Marika Holland (National Center for Atmospheric Research), Elizabeth Hunke (Los Alamos National Laboratory), Kaj Riska (Total E&P UK Limited), Vernon Squire (University of Otago, NZ), Courtenay Strong (University of Utah).

2018 Member, Organizing Committee for the Advanced Composite Materials Congress 2018, June, Stockholm

2018 Co-Organizer with Noa Kraitzman and Elena Cherkaev of Minisymposium on *Linking Scales in Earth's Sea Ice System*, SIAM Conference on Mathematics of Planet Earth, September 2018, Philadelphia

2018−2019 Member, Organizing Committee for the SIAM Conference on Computational and Mathematical Issues in the Geosciences, March 2019, Houston

2020−2023 Member, Steering Committee for the KOZWaves Conference Series on Australasian Wave Science

2021−2022 Member, Organizing Committee for the 2022 SIAM Annual Meeting (AN22), July 2022, Pittsburgh

2021−2022 Member, Organizing Committee for the SIAM Conference on Mathematics of Planet Earth (MPE22), July 2022, Pittsburgh

2022 Member, Steering Committee of the NSF funded SIAM Convening on Climate Science, Sustainability, and Clean Energy, Tysons Corner, VA

2022−2023 Member, Organizing Committee for the Wilkes Summit on Climate Science and Policy, University of Utah, May 2023, Salt Lake City

2025 Simons Laufer Mathematical Sciences Institute (SLMath) Summer Graduate School, Mathematics of Sea Ice and Polar Ecosystems, University of Alaska Fairbanks, Organizing Committee: Ken Golden and Jody Reimer; two weeks with 35 Math Ph.D. students

2025−2026 Co-Chair, Organizing Committee (with Kara Peterson, Sandia National Lab), SIAM Conference on Mathematics of Planet Earth (MPE26), Cleveland

Undergraduate Research Students

1992–94 Eric Bair (Mathematics), *Bounds on the complex permittivity of sea ice.*

2001–04 Troy Finlayson (Physics), *Thermal conductivity of sea ice.* Traveled to the Arctic, and lectured on this research. Received M.D. from U. of Utah Medical School in 2008.

2002–05 Amy Heaton (Chemistry), *Fluid permeability of sea ice.* Traveled to the Arctic twice for research. Gave numerous lectures on her research, including an Undergraduate Math Research Conf. at Ohio State (2003), the Physics Dept. at Victoria University, New Zealand (2004), the Utah State Legislature (2004), and with Golden at an exhibition in the US Congress in June 2003. Finished a Ph.D. in Chemistry at U. of Utah in 2008.

2002–04 Ben Murphy (Mathematics, Physics), *Statistical mechanics of phase transitions.*

2002–03 Rhett Hadley (Biology), *Enzymatic foraging of sea ice bacteria.* Traveled to the Arctic for this research.

2002–05 Ali Jabini (Electrical and Computer Engineering, Mathematics), *Network model for fluid flow in sea ice.* Traveled to the Arctic for research. Gave numerous lectures, and subsequently received an M.S. in Electrical Engineering at Columbia University.

2004–07 Olakunle Eso (Mathematics, Electrical and Computer Engineering), *Numerical solutions of the Helmholtz equation for electromagnetic waves in layered composites.*

2004–08 Megan Morris (Mathematics, Biomedical Engineering), *Network models for fluid flow in sea ice and air flow in lungs.* Traveled to the Arctic for research. Gave numerous lectures on her research.

2004–08 Adam Gully (Mathematics), *Complex permittivity of sea ice; recovery of microstrucural characteristics; fluid flow in sea ice.* Traveled to the Arctic for research. Assisted in experiments on fluid and electrical transport in sea ice in Antarctica, Sept.–Oct. 2007. Gave numerous presentations on his research, and interviews on the expedition. In 2008 Adam won the Research Scholar Award, the highest research honor given to an undergraduate in the College of Science at the University of Utah.

2006–07 Kellen Petersen (Mathematics, Physics), *Fluid connectivity in rock microstructures.* Gave numerous research lectures. In 2007 Kellen won the College of Science Research Scholar Award. Currently in the Math Ph.D. program at Courant Inst., NYU.

2006–07 Dave Arcilesi (Mathematics, Physics), *Lee-Yang theory in lattice statistical mechanics.*

2007–09 Peter Sommerkorn (Mechanical Engineering, Mathematics), *Experiments on the dynamic behavior of electrorheological (ER) fluids* (led a team of 5 other senior mechanical engineering students in design and implementation of the experiments).

2007–10 Christian Sampson (Mathematics, Physics), *Electrical conductivity of sea ice: analysis of surface impedance tomography data and direct measurements on vertical cores.*

2008–10 Stephen Greene (Mathematics), *Diffusion limited aggregation models for ER fluid microstructures, theory and numerical simulations.*

2009 Ginger Dobie (Mathematics), *Modeling ice-albedo feedback in the Arctic Ocean.*

2009 Jonathan Ng (Mathematics, Physics), *Modeling sea ice albedo.*

2009–10 Bryan Scharman (Electrical and Computer Engineering), main advisor Professor Cynthia Furse, *Development of techniques for measuring the DC conductivity of sea ice.*

2010 Kevin Hammonds (Atmospheric Sciences), *Melt pond evolution.*

2010–11 Erik Gamez and Jacob Hansen (Electrical and Computer Engineering), main advisor Professor Cynthia Furse, *Development of field techniques for measuring the complex permittivity of sea ice.*

2010–11 Kyle Steffen (Mathematics), *Qualitative structure of melt pond geometry.*

Undergraduate Research Students (continued)

2010–2012 David Lubbers (Electrical and Computer Engineering), co-advised with Professor Cynthia Furse, *Development of field techniques for measuring the electromagnetic properties of sea ice*, traveled to Antarctica in 2010 and 2012 and to the Arctic in 2011, 2012, and 2013.

2011–2013 Rajath Thekkedath (Mechanical Engineering), *Ising model for melt pond evolution.*

2011–2012 Sam Preston (Electrical and Computer Engineering), main advisor Professor Cynthia Furse, *Development of methods for measuring the complex permittivity of sea ice.*

2012–2016 Brady Bowen (Mathematics and Physics), *Continuum percolation model for melt pond evolution.*

2012–2015 Boya Song (Computer Engineering), *Network models for melt pond configurations.*

2012 Daniel Khoury (Computer Engineering), *Complex permittivity of random networks.*

2013 Erik Johnson (Mathematics and Physics), *Arctic melt ponds.*

2014–2015 Sarath Thekkedath (Applied Math and Electrical and Computer Engineering), *Complex permittivity of sea ice.*

2014 Kasey Leavitt (Applied Math and Physics), *Cheeger constants for Arctic melt ponds.*

2014–2016 Hanna Kim (Applied Math and Biology), *Sea ice ecology and under-ice algal blooms.*

2015–2016 Mohammad Jabini (Mathematics), *Lattice models for sea ice processes.*

2015–2016 Dallas Taylor (Mathematics), *Width of the marginal ice zone.*

2015 Ethan Carr (Mathematics), *Random matrix theory for composites.*

2015–2017 Ethan Hamilton (Mathematics, Metallurgical Eng.), *Inverse methods for bone.*

2016–2018 Rebecca Hardenbrook (Mathematics), *Advection diffusion in sea ice.* In 2018 Rebecca won the Research Scholar Award, the highest research honor given to an undergraduate in the College of Science at the University of Utah.

2016–2020 Ruby Bowers (Applied Mathematics), *Exploring habitability in the sea ice on Europa.*

2017–2019 Matteo Sogne (Mathematics), *Transport in quasiperiodic media.*

2017–2018 Chantel Lapins (Mechanical Engineering, Applied Mathematics), *Inverse homogenization for human bone.*

2017–2019 McKenzie McLean (Mathematics), *Complex permittivity of polycrystalline media.*

2017–2020 Delaney Mosier (Mathematics), *Low order models for the evolution of the sea ice concentration field; machine learning for sea ice source/sink fields.* In 2020 Delaney won the Research Scholar Award, the highest research honor given to an undergraduate in the College of Science (COS) at the University of Utah, and gave the COS Commencement Address.

2018–2019 Jacqueline Rose Cinella Rich (Computer Science), *Evolution of the ice thickness distribution.*

2018–2019 Dane Gollero (Physics, Mathematics), *Saddle points and the fractal geometry of Arctic melt ponds.*

2019–2020 Samir Suthar (Physics), *Waves in sea ice.*

2019–2020 Anna Hyde (Mathematics), *Extracellular polymeric substances and sea ice algae.*

2019–2021 Kay Stewart (Mathematics), *NP model of algae blooms in sea ice.*

2019–2022 Kitsel Lusted (Mettalurgical Engineering), *Polycrystralline structure of sea ice.*

2020–2021 Kimball Johnston (Mathematics), *Fractal analysis of brine microstructure in sea ice.*

2020–2021 Jerry Zhang (Mathematics), *Geometry of the marginal ice zone.*

2020–2024 Nash Ward (Mathematics, Physics), *Fractal dimension of the brine microstructure in sea ice; fractal geometry of the sea ice pack.* Traveled to the Arctic for research.

Undergraduate Research Students (continued)

2020–2024	David Gluckman (Mathematics), *Topography-albedo feedback model for Arctic sea ice with time dependent melt ponds and surfaces.* Traveled to the Arctic for research.
2020–2025	Nicole Forrester (Mathematics), *Polar bear energetics in a fractal sea ice pack.*
2021	Michael Delgado (Mathematics), *Quasiperiodic media in one dimension.*
2021–2022	Jake Lowe (Biology), *Finding the percolation threshold for fluid flow through the sea ice on Europa.*
2023–2024	Jaskehar Sekhon (Mathematics), *Spectral measures of fractal structures in sea ice.*
2023–2024	Kathy Lin (Mathematics), *Electromagnetic properties of sea ice containing algae.* Traveled to the Arctic for research.
2023–2025	Maggie Hammer (Mathematics), *Complex permittivity of granular sea ice.*
2024–2025	Adam Dorsky (Mathematics), *Fractal geometry of the sea ice pack and the floe size distribution.*
2024–2025	Cole Yearsly (Mechanical Engineering), *Metamaterials.*
2024–	Kaeden George (Mathematics), *Anomalous diffusion of ice floes.*
2025–	Darren Skolnik (Mathematics, Data Science), *Topological data analysis of X-ray CT data on the brine inclusions in sea ice.*
2025–	Manav Arora (Mathematics, Computer Science, New Jersey Institute of Technology), *Computational topology of brine inclusions in sea ice from X-ray CT data.*
2025–	Theo Rogers (Mechanical Engineering), *Modeling sea ice mechanics; fluid flow.*
2025–	Clara Platt (Mathematics), *Uncertainty quantification in homogenization; random matrix theory.*
2025–	Natasha Smith (Mathematics, Chemistry), *Computational topology of surface melt ponds; microbial life on the icy moons of Jupiter and Saturn.*
2025–	Zerin Campbell (Mathematics, Computer Science), *Continuous spin Ising model for sea ice concentration.*
2025–	John Knight (Geography, Mathematics, Physics), *Porous microstructures.*

High School Students

2009–2011	Ryan Baker, Hillcrest High School, *Complex permittivity of sea ice.*
2011–2013	Rebecca Nickerson, West High School, *Lattice models for melt pond evolution.*
2013–2014	Sarah Silcox, West High School, *Fractal geometry of Arctic melt ponds.*
2013–2014	Daniel Liu, West High School, *Thermal conductivity of sea ice; advection–diffusion.*
2014–2015	Mohammad Jabini, West High School, *Lattice models for sea ice processes.*
2014–2016	Anthony Cheng, Hillcrest High School, *Percolation threshold for Arctic melt ponds.*
2014–2016	Everest Fang, Skyline High School, *Advection–diffusion in the sea ice pack.*
2016–2017	Dylan Webb, Skyline High School, *Melt pond percolation on Arctic sea ice.*
2016–2017	Titus Quah, West High School, *Thermal conductivity of sea ice; advection–diffusion.*
2018–2019	Jeremiah Chapman, City Academy, *Geometry of Arctic melt ponds.*
2021–2022	Elias Sigman, West High School, *Stieltjes functions and spectral theory.*
2021–2022	Powell Holzner, West High School, *Melt ponds percolation; sea ice surface topology.*
2022	Eleanor Stevens, Academy for Math, Engineering & Science, *Fractal ice pack.*
2022–2024	Anthony Lee, (10th - 12th grades) Milton Academy, MA, *Inverse problem for uncertainty quantification in algal bloom models.* Traveled to the Arctic for research.
2022–2024	Adam Dorsky, (11th - 12th grades) Academy for Math, Engineering & Science, *Fractal geometry of the sea ice pack.*
2023–2025	Clara Platt, (10th - 12th grades) Highland High School, *Percolation of brine in sea ice; uncertainty quantification for Stieltjes functions.*
2024–2025	William Harrison, (11th - 12th grades) Corner Canyon High School, Salt Lake City, *Ising model for melt ponds and sea ice concentration.*
2024–2025	Natasha Smith, (12th grader) Skyline High School, Salt Lake City, *Percolation in Europan sea ice.*
2025	Elijah Kulikov, (10th grader) Bronx High School of Science, New York City, *Fractal structure of the sea ice pack.*
2025–2026	Sophia Tsiklauri, (10th grader) Moscow High School, Moscow, Idaho, *Fractal structure of the sea ice pack.*
2025–	Aashita Mandiwal, (9th grader) West High School, Salt Lake City, *Fractal structure of cancerous cells and Arctic melt ponds.*

Graduate Students

- Romuald Sawicz, Ph.D. 1995, *Bounds on the complex permittivity of multiphase composite materials by analytic continuation.*
- Kelly Macarthur, M.S. 1996, *Inversion of electromagnetic data to recover microstrucural parameters of sea ice.*
- Chris Orum, 1998–2000, *Rigorous inverse bounds on microstructural parameters of composites by complex variable methods* (completed Ph.D. in probability at Oregon State).
- Megan Morris, M.S. 2010, *Sea ice algae and extracellular polymeric substances (EPS); fluid permeability of sea ice.*
- Zhu Wang, M.S. 2011, *Analytic continuation bounds for advection−diffusion processes.*
- Ben Murphy, Ph.D. 2012, *Statistical mechanics of electrorheological fluids; spectral measures and random matrix theory for composite structures.*
- Adam Gully, B.S./M.S. 2008, Ph.D. 2012, *Theory and experiments on fluid and electrical transport in sea ice; analytic continuation bounds for polycrystalline composites.* Traveled to the Arctic and Antarctic for research.
- Christian Sampson, Ph.D. 2017, *Multiscale models for sea ice.* Traveled to the Arctic (3 times) and Antarctic for research.
- Kyle Steffen, Ph.D. 2018, co-advised with Yekaterina Epshteyn, University of Utah Global Change and Ecosystem Center Fellow 2011−2012, *Fluid flow through porous media; evolution of Arctic melt pond geometry.* Traveled to the Arctic for research.
- Huy Dinh, Ph.D. 2020, *Anomalous diffusion and sea ice dynamics.*
- Ryleigh Moore, 2017 − 2020, *Geometry of Arctic melt ponds, Morse theory.* Traveled to the Arctic for research.
- David Morison, Ph.D. 2021, Physics Department, U. of Utah, *Spectral analysis of transport in periodic, quasiperiodic and random media.* (Mentored with Ben Murphy and Elena Cherkaev.)
- Rebecca Hardenbrook, Ph.D. 2023, University of Utah Global Change and Ecosystem Center Fellow 2018−2019, *Advection diffusion; melt pond evolution, topological data analysis.* Traveled to the Arctic for research.
- Julie Sherman, Ph.D. 2025, *Statistical studies in Earth system science*; Traveled to the Arctic for research.
- Delaney Mosier, Ph.D. 2025, *Mathematical models for multiscale sea ice processes*; University of Utah Global Change and Ecosystem Center Fellow 2020−2021, Traveled to the Arctic for research.
- Daniel Hallman, Ph.D. 2025, *Spectral measure computations for composite materials*, Traveled to the Arctic for research. (Mentored with Ben Murphy and Elena Cherkaev)
- Anthony Jajeh, 2023 − 2026 (expected), primary advisor: Jody Reimer, secondary advisor: Ken Golden, *Polar microbial ecology and the physics of sea ice.* Traveled to the Arctic for research.
- Asher Merrill, 2023− , NSF RTG Graduate Fellow, *Multiscale physics of sea ice processes; physics-informed machine learning for sea ice concentration*, (co-advisor: Akil Narayan)

- Tim Su, 2025− , *Waves in sea ice and complex materials; homogenization* (co-advised with Elena Cherkeav).
- Served on Ph.D. and M.S. committees in Mathematics, Physics, Biomedical Engineering, Mechanical Engineering, Chemistry, and Atmospheric Sciences.

Postdoctoral Fellows

- Richard McLaughlin, 1994−1996, NSF Mathematical Sciences Postdoctoral Fellow, Ph.D., Princeton 1994, *Convection enhanced diffusion.*
- Yury Grabovsky, 1995−1997, Ph.D., NYU 1995, *Homgenization for composite materials.*
- Bacim Alali, 2009−2012, Wylie Postdoctoral Fellow (Research Asst. Professor), Ph.D., Louisiana State University 2008, *Fractal structure of polar sea ice packs and melt ponds.* Traveled to the Arctic for research.
- Joyce Lin, 2009−2012, NSF VIGRE Postdoctoral Fellow (Research Asst. Professor), Ph.D., U. North Carolina Chapel Hill 2009, *Modeling the properties of sea ice and ER fluids; measuring the fluid and electrical transport properties of sea ice.* Traveled to the Arctic (2 times) and Antarctic for research.
- Chris Orum, 2011−12, NSF Ed Lorenz Postdoctoral Fellow in the Mathematics of Climate, Ph.D., Oregon State University, 2004, *Inverse algorithms for recovering sea ice microstructure.*
- Ivan Sudakov, 2012−15, NSF Ed Lorenz Postdoctoral Fellow in the Mathematics of Climate, Ph.D., Novgorod State University, St. Petersburg 2012, *Climate bifurcations, melt ponds, and ice-albedo feedback; Ising model for Arctic melt ponds.* Traveled to the Arctic for research.
- Noa Kraitzman, 2015−19, University of Utah Math Department Instructorship, NSF Ed Lorenz Postdoctoral Fellow in the Mathematics of Climate, Ph.D., Department of Mathematics, Michigan State Univ. 2015; *Advection diffusion processes; convection enhanced thermal transport in sea ice.*
- Jody Reimer, 2019−22, University of Utah Math Department Wylie Instructorship, Ph.D. Department of Mathematics, University of Alberta, 2019; *Sea ice microbial ecology.*
- Debdeep Bhattacharya, 2023−24, Office of Naval Research Mathematics of Sea Ice Postdoctoral Fellow, Ph.D. Department of Mathematics, George Washington University, 2020; Postdoctoral Researcher, Louisiana State University, 2020-2023; *Partial differential equation models and uncertainty quantification for sea ice as a granular material.*
- Tyler Evans, 2023−26, National Science Foundation RTG Postdoctoral Fellow, Ph.D. Department of Mathematics, Southern Methodist University, 2023; *Anomalous diffusion in sea ice dynamics; Ising model for the sea ice concentration field.*
- Likhit Ganedi, 2025−28, National Science Foundation RTG Postdoctoral Fellow, Ph.D. Department of Mathematics, Carnegie Melon University, 2022; *Sea ice pack as a granular material; phase-field model for the sea ice concentration field.*

Courses Taught

Graduate Courses: Methods of Applied Mathematics, Applied Linear Operator and Spectral Methods, Theory of Inhomogeneous Materials, Percolation Theory, Statistical Mechanics, Analytic Functions of Several Complex Variables, Sea Ice and the Climate System.

Undergraduate Courses: Calculus I, II, and III, Engineering Math, Ordinary Differential Equations, Partial Differential Equations, Mathematics and Climate. Since 2001, I have taught over 6,000 students in 45 sections of Calculus I, II, or III, mostly freshmen and sophomores (and over 7,500 students since arriving at the U in 1991).

Recent Classes

Fall semester 2015: 190 students in two sections of Math 2210, Calculus III.
Spring semester 2016: 15 students in Math 5750/6880, Mathematics and Climate.
Spring semester 2017: 200 students in two sections of Math 1220, Calculus II.
Fall semester 2017: 16 students in Math 5750/6880, Mathematics and Climate.
Spring semester 2018: 120 students in two sections of Math 2210, Calculus III.
Fall semester 2018: 250 students in two sections of Math 1210, Calculus I.
Fall semester 2019: 150 students in two sections of Math 2210, Calculus III.
Spring semester 2020: 25 students in Math 5750/6880, Mathematics and Climate.
Fall semester 2020: 170 students in two sections of Math 1210, Calculus I.
Fall semester 2021: 185 students in two sections of Math 2210, Calculus III.
Fall semester 2022: 200 students in two sections of Math 2210, Calculus III.
Spring semester 2023: 25 students in Math 5750/6880, Mathematics and Climate.
Spring semester 2024: 180 students in one section of Math 1220, Calculus II.
Fall semester 2024: 250 students in two sections of Math 2210, Calculus III.
Spring semester 2025: Math 1212, Mathematics of Polar Regions; developed to satisfy the General Education Requirement with a Life Sciences Designation; 6 students.
Spring semester 2026: 150 students in two sections of Math 2210, Calculus III.

Selected Media Coverage

- Radio, Television, and Web Interviews:

  2007 KUER Radio (Public Radio), via satellite phone from Antarctica.

  2008 KJZZ TV (KUTV2, CBS), *Morning News* (live).

  2009 KEUD TV (Public TV), *Utah Conversations with Ted Capener*, 30 minute show covering my climate change research and Antarctic expeditions.

  2010 KSL Radio, Five interviews of U of U team via satellite phone from Antarctica and NZ.

  2011 103.8 FM Dubai Eye Radio, Interview about Public Lecture, United Arab Emirates.

  2012 KSL Television, One interview and two additional stories on our Antarctic expedition.

  2012 Australian Broadcasting Corp., *Australia's Antarctic supply ship icebound* (three stories).

  2012 Barrow Arctic Science Consortium (BASC) Presents Ken Golden, Produced by Nokinba Acker, 15 minute video, Ken Golden and team doing science on the frozen Arctic Ocean.

  2013 WCME Radio, Maine, interviewed about sea ice and climate change by R. Kazimer.

  2013 Swiss Public Radio, *Trip to Alaska: On the trail of climate change*, T. Häusler, Three half-hour segments on our sea ice field work in the Arctic Ocean off Barrow, AK.

  2014 *NSF Science Nation* (video): "Mathematician combines love for numbers and passion for sea ice to forecast melting."

  2014 NBC News/NBC Learn video on *Science and Engineering of the 2014 Olympic Winter Games*, featured in "Science of Ice."

  2015 The Weather Channel, Interviewed on Weatherman Al Roker's show *Wake Up with Al*, about sea ice, math, and the First National Math Festival in Washington D.C.

  2015 First National Math Festival, Featured in 2 minute video synopsis of the event.

  2015 NSF *Science360* Radio, 10 minute interview, "NSF-funded Ken Golden, mathematician and adventurer, explains the mathematics of sea ice and how his findings relate to climate change," provided by the American Mathematical Society as an AMS *Mathematical Moment*.

  2015 NSF Discoveries Video: "On Golden's Melt Pond - Math on Ice." (9 min., plus article)

  2016 *Emerald Planet* Television Show (one hour) on our NSF Math Climate Research Network; including 15 minute interview of Golden on *Sea ice and its role in the climate system.*

  2017 SIAM Video: Math Behind Sea Ice and our Changing Planet, featuring Emily Shuckburgh, OBE, of the British Antarctic Survey (now U. Cambridge) and Golden (3 min.)

  2021 Frontiers of Science: Ken Golden, U. of Utah (won higher education video awards)

  2022 Mindset Minute for Utah Schools (Elementary, Junior High, High School), interviewed for a short video on facing challenges with confidence, using my Antarctic footage.

  2023 KPCW Radio, Katie Mullaly, Cool Science Radio, Importance of STEM careers in the U.S., Park City, UT

- News Articles:

  The Salt Lake Tribune: September 1994, December 1998, December 1999, January 2011.

  Accounts of an engine room fire on the *Aurora Australis* in Antarctic sea ice, July 1998, in *Sydney Morning Herald*, *Canberra Times*, etc. and magazines *NewScientist* and *Science*.

  SIAM News (Soc. for Industrial and Applied Math.), Mathematics and Climate, March 2009.

  The National, Global warming expert to speak in Abu Dhabi, UAE, January 2011.

  Union Tribune San Diego, Polar treks add up for mathematician, January 2013.

  Loyola Phoenix, Meet Ken Golden: Arctic adventurer and mathematician, October 2014.

  The Daily Utah Chronicle, Photo Series: Academia in the Arctic, Marco Lozzi, October 2024.

- Magazine Articles:

  Science News, Mathematician on ice, Ivars Peterson, pp. 106-108 (and cover), August 2000.

  Geotimes, Water pours through pores in sea ice, Nicole Branan, pp. 16-18, November 2007.

  Science, Cold equations (Profile: Ken Golden), Dana Mackenzie, pp. 32-33, 3 April 2009.

  Science News, Melting at the microscale: Studying sea ice close-up may improve climate models, by Alexandra Witze, Vol. 177, No. 13, p. 22-25, June 2010.

  Australian Antarctic Mag., The Golden Rule of Sea Ice Permeability, W. Pyper, Oct. 2013.

  Wasatch Magazine, Weather Patterns, Chad Mobley, March 2013.

  Zeit Magazin, Wenn hier nichts mehr ist, ist es vorbei, T. Häusler, pp. 76-80, November 2013.

  University of Utah Magazine, On Thin Ice, Brian Maffly and Seth Bracken, Winter 2024.

- Website Articles:

  ScienceDaily, *Newswise*, *PhysOrg*, *EurekAlert*, *Ars Technica*, *EE Times, EE Times Asia*, etc., coverage of results on fluid flow in sea ice published in *Geophys. Res. Lett.*, September 2007.

  ScienceDaily, NSF News Service *Science360*, *EurekAlert*: Mathematics and Climate Change - Gaining Insights into the Nature of Sea Ice, Allyn Jackson (AMS), April 2009.

  Wired.com, In mysterious pattern, math and nature converge, N. Wolchover, Feb. 2013.

  ScientificAmerican.com, Mathematical patterns in sea ice reveal melt dynamics, Geoffrey Giller, March 2014.

  YahooNews, Polar ice may hold secrets of futuristic materials, Amina Khan, November 2015.

  Physics Today, Q&A, What is a mathematical physicist doing out in the cold? Kenneth Golden puts numbers to sea ice, melt ponds, and massive waves. Toni Feder, March 2016.

  EurekAlert, ScienceDaily, AGU Geospace, etc., Melt ponds form when meltwater clogs pores; Pond formation mechanism previously unknown, P. Gabrielsen (U. of Utah), Jan. 2017.

  Smithsonianmag.com, The slick science of making Olympic snow and ice, M. Wei-Haas, 2018.

  Wired.com, Magnetic materials help explain how Arctic ice melts, Meredith Fore, July 2019.

  PhysicsWorld.com, When is Arctic ice like a magnet? Marric Stephens, July 2019.

  ScientificAmerican.com, Magnet and neuron model also predicts Arctic sea ice melt, Leila Sloman, July 2019.

  Eos, A nearly 100-year-old physics model replicates modern Arctic ice melt, Rachel Crowell, August 2019.

BBC.com, Counting on mathematicians to help save the planet, Sarah Griffiths; in a series, "Unlocking Science." The article features our research on modeling sea ice and climate, polar expeditions and work on the ACCESS Program to increase diversity in STEM. Series launch: November 9, 2021; article launch: December 7, 2021.

Phys.org, EurekAlert!, Bioengineer.org, nanowerk, Scienmag, ..., New, highly tunable composite materials – with a twist, P. Gabrielsen (U. of Utah); *SciTech Daily*, With a Twist: New Composite Materials With Highly Tunable Electrical and Physical Properties, June 14, 2022.

Popular Mechanics, How atomic-scale geometry might shape the future of electronics, Adrienne Bernhard, June 15, 2023.

Through Adversity to the Stars: Transcript of Ken Golden's opening remarks on the second day of the Wilkes Climate Science & Policy Summit, May 16-17, 2023, University of Utah. https://science.utah.edu/faculty/through-adversity-to-the-stars/

How statistical physics illuminates sea ice, a critical piece of Earth's climate system, Brian Maffly, University of Utah, 2023, https://attheu.utah.edu/facultystaff/how-statistical-physics-illuminates-sea-ice-a-critical-piece-of-earths-climate-system/

SIAM News, The dynamics of algae and exopolymeric substances in sea ice, Lina Sorg, June 2024

SciTechDaily, Phys.Org, Cikavosti, Science Daily, ..., Sea ice mystery solved: New research addresses a key gap in current climate modeling, Macquarie University, August 2024

The National Tribune (Australia), Mathematicians crack a sea ice puzzle that advances what we know about global warming, Macquarie University/The Lighthouse, August 2024

PhysicsWorld.com, Convection enhances heat transport in sea ice, Isabelle Dumé, September 2024

Phys.org, Mathematicians and climate researchers build new models for understanding polar sea ice (or Unpacking polar sea ice in *EurekAlert!, ScienceDaily, Newswise*), Brian Maffly, University of Utah, October 2024

Eos, Heat moves more freely through warmer sea ice than scientists thought, Nathaniel Scharping, October 2024

The Cornerstone, College of Natural Science and Mathematics hosts SLMath summer school on sea ice modeling, University of Alaska Fairbanks, Gracie Raymond, July 2025

@THEU, Aftermath, A mathematics expedition to the frozen Arctic (Equations on ice), Izabella Bourland, Michael Jacobsen, October 2025