

# Margot Gerritsen

Email: [margot.gerritsen@stanford.edu](mailto:margot.gerritsen@stanford.edu)

url: <http://margot.stanford.edu>

*Full Professor*, Department of Energy Resources Engineering, Stanford  
*Senior Associate Dean*, School of Earth, Energy & Environmental Sciences, Stanford  
*Founder and Co-Director*, Global Women in Data Science

## Education

1990 MSc in Applied Mathematics, Delft University of Technology  
1997 PhD in Scientific Computing and Computational Mathematics, Stanford

## Academic Appointments

from 2001 Faculty member, Department of Energy Resources Engineering, Stanford  
from 2016 Senior Associate Dean, School of Earth, Energy and Environmental Sciences, Stanford  
2010-2018 Director, Institute for Computational & Mathematical Engineering, Stanford  
from 2004 Professor by courtesy, Mechanical Engineering, Stanford  
from 2004 Professor by courtesy, Civil & Environmental Engineering, Stanford  
2010-2016 Professor II, Department of Mathematics, University of Bergen, Norway  
2013, 2017 Visiting Professor, Institut de Mechanique des Fluides, Toulouse  
2008-2012 Visiting Professor, Department of Scientific Computing, Uppsala University, Sweden  
2008-2010 Visiting Professor, Applied Earth Sciences, Delft University of Technology, The Netherlands  
1997-2001 Lecturer, Department of Engineering Science, University of Auckland, New Zealand  
1991 Lecturer, University of Colorado, Denver

## Honors/Awards

2020-2024 Oswald G. Villard University Fellow in Undergraduate Education, reappointed  
2019 Doctor Honoris Causa (Honorary Doctor), Uppsala Universitet, Sweden  
2018 Fellow, Society for Industrial & Applied Mathematics  
2018 Teaching Honor Roll, Tau Beta Pi  
2017 Honorary Member, Cap and Gown Women's Leadership Honor Society  
2014-2019 Oswald G. Villard University Fellow in Undergraduate Education  
2014 Richard W. Lyman Award, Stanford Alumni Association  
2014 SWE Professor of the Year, Society of Women Engineers, Stanford  
2011 Magne Espedal Professor II, University of Bergen, Norway  
2011 Stanford School of Earth Sciences Award for Excellence in Teaching  
2010-2012 Stanford Fellow  
2009 Leopold Leadership Fellow  
2008-2010 Faculty Research Fellow, Clayman Institute  
2002-2004 Frederick E. Terman Fellow  
1990 International Rotary Award

## **Selected Leadership & Service**

*Not included: activities prior to 2001*

### **Stanford**

- from 2016 Senior Associate Dean, School of Earth, Energy & Environmental Sciences
- from 2016 Faculty Advisory Board, Knight-Hennessy Scholarship Program
- 2010-2018 Director, Institute for Computational & Mathematical Engineering
- 2016-2018 Steering Committee, Faculty Senate
- 2015-2016 Search Committee for Stanford's 11th President
- 2014-2016 Chair, Provost Taskforce on Women in Leadership
- 2014-2016 University Course Evaluation Committee
- from 2014 Stanford Breadth Governance Board
- from 2014 Stanford Undergraduate Advisory Council
- 2013-2014 Search Committee for the School of Engineering Dean
- 2010-2018 Stanford Faculty Senate
- 2010-2012 Stanford Committee on Committees
- 2004-2006 Steering Committee, Institute for Computational & Mathematical Engineering
  
- 2017, 2020 Faculty Lead, Stanford Travel & Study, Alaska
- 2014, 2016 Faculty Lead, Stanford Travel & Study, New Zealand
- 2012, 2019 Faculty Lead, Stanford Travel & Study, Kilimanjaro
- 2004-2006 Director, Stanford-National Geographic Pterosaur Replica Project
- from 2001 Other service contributions include
  - Faculty search committees (Mechanical Engineering, Aeronautics and Astronautics, Math+X, Geological Sciences, and the Institute of Computational & Mathematical Engineering)
  - Ad-hoc committees around campus (local event organization, diversity, outreach)
  - Mentoring and advising activities (pre-major advising, advisor for student councils and women's organizations, graduate student mentor)
  - Activities supporting the Stanford Alumni Association, including talks at alumni clubs around the world and during homecoming weekends and bookclub.

### **Conference Organization**

- 2019 Chair, Women in Data Science Stanford Earth
- from 2015 Founder & Co-Director, Global Women in Data Science Conference ([widsconference.org](http://widsconference.org))
- 2015 Co-Chair & Local Organizer, SIAM Geosciences Conference, June 29 - July 2
- 2014 Co-Chair, SIAM Annual Conference, Chicago, July 7-11
- 2017 Organizing Committee, SPE Reservoir Simulation Symposium, Houston, February 20-22
- 2011 Co-chair, IMA Workshop on Societally Relevant Computing, Minneapolis, April 11-15
- from 2011 Co-chair, Annual CUDA on Campus Conference, October
- 2010 Organizing Committee, Gordon Conference on Flow & Transport in Permeable Media
- from 2010 Co-chair, Bay Area Scientific Computing Day, December
- 2009-2010 Chair, Woods and Precourt Large Scale Solar Technology Policy Forum
- from 1994 Organization of various mini symposia at conferences, including SIAM conferences and JMM, and local, national and international research workshops

## External Boards & Councils

- from 2020 Chair of Board of Trustees, Society of Industrial and Applied Mathematics (SIAM)
- from 2019 Advisory Board, Human Rights Data Analysis Group, San Francisco
- from 2018 Sektorplan Commissie Kamer Beta, Ministerie van Onderwijs, Cultuur en Wetenschap (advisory role, research and education in applied sciences for the Dutch Department of Education, Science and Culture)
- from 2017 Board of Trustees, Society of Industrial and Applied Mathematics (SIAM)
- 2007-2011 Chair, SIAM Activity Group Geosciences
- 2008-2012 Council Member, SIAM
- 2008-2010 Council of InterPore, International Society for Porous Media

## Editorial and Review Activities

- 2013-2019 Editorial Board, SIAM Survey & Review
- 2013-2018 Associate Editor, Transport in Porous Media (Springer)
- from 2008 Associate Editor, Journal of Sailboat Technology
- 2008 Special Series Committee, Journal of Petroleum Technology
- 2016 Opponent, PhD candidate Olav Moyner, NTNU, Norway
- 2014 External Review Committee, Computational Directorate, Lawrence-Livermore National Laboratory, February 11-13
- 2013 Review Committee, Information Technology & Engineering, Norwegian University of Science and Technology, Trondheim
- 2012 External Review Committee, Department of Mathematics, University of Bergen, Norway
- 2012 External Review Committee KAUST-TUM Special Partnership, King Abdullah University of Science and Technology, February 2-4
- 2011 Review Committee, KAUST Global Collaborative Research Projects
- 2008 Opponent, PhD candidate John van Esch, Delft University of Technology, the Netherlands
- 2006 Opponent, PhD candidate, Sofia Werner, Chalmers University, Sweden
- 2006 Opponent, PhD candidate, Kajsa Lundberg, Uppsala University, Sweden
- 2006 Swedish Research Council, Evaluation Panel for Mathematics and Engineering
- from 1995 Reviewer for, amongst others, Journal of Computational Physics, Transport in Porous Media, Computational Geosciences, SPE Journal, SPE Reservoir Evaluation & Engineering, Computers & Fluids, Computers & Geosciences

## Principal Keynotes/Invited Plenary Talks

- 2020 Annual Excellence in Dialogue Lecture, University of Stuttgart
- 2019 Plenary - INTERPORE conference, Valencia
- 2019 Plenary - Women in Numerical Analysis conference, BIRS, Canada
- 2019 Keynote - MATHIAS Conference, Paris
- 2019 Keynote - Perspektywy Women in Tech Summit, Warsaw
- 2017 Semi-Plenary - 14th US National Congress on Computational Mechanics
- 2017 Plenary - SIAM Conference on Computational Science and Engineering
- 2017 Keynote - Inauguration Institute for Computational Science and Engineering, TUDelft
- 2016 Plenary - Inaugural SIAM Conference on Applied Mathematics Education
- 2016 Plenary - Improved Oil Recovery Conference, Stavanger, Norway
- 2015 Plenary - 40th Woudschoten Conference on Numerical Analysis and Computational Sciences
- 2015 Plenary - Tekna Conference, Oslo, Norway, October
- 2015 Plenary - MNT Conference on Education, Bergen, Norway, April
- 2014 Horizon Lecture, University of Bergen, Norway
- 2015 2015 Kieval Lecture, Humboldt State University
- 2014 Keynote - Science Sundays, Ohio State University, Columbus Ohio
- 2015 First Lecture on Liberal Education, Stanford, September
- 2014 First Lecture on Liberal Education, Stanford, September
- 2014 TedX Stanford, "The Beauty of Linear Algebra"
- 2013 Keynote - Mathematics of Planet Earth, Vancouver & Calgary
- 2012 Plenary - XIX International Conference on Computational Methods in Water Resources
- 2010 Plenary - Symposium Huli'ia ka honua, Geothermal Development in Hawaii, Volcano, May
- 2009 Keynote - Inauguration Center for Programming of Multicore Architectures, Uppsala
- 2009 Plenary - Energy, Wind & Water Conference, New Zealand
- 2008 Keynote - Joint Distinguished UBC SCAIM-SFU CSC Seminar, Vancouver
- 2007 Plenary - SIAM Conference on Mathematical and Computational Issues in the Geosciences
- 2007 Plenary - Marie Curie Workshop on Flow and Transport in Porous Media, NL
- 2006 Plenary - Gordon Conference on Flow and Transport in Porous Media, Andover
- 2003 Keynote - Chalmers Yacht Research Inauguration, Gothenburg, Sweden

## Teaching: Courses & Programs

*\* indicates courses developed/initiated; (xx) average number of students*

### Undergraduate Courses & Programs

- 2013-2019 \*ICME Short Course program  
Series of 1-unit courses in introductory computing and applied mathematics for the wider Stanford community (CME 151, 151A, 192, 193, 194, 195, 196, 250, 250A, 252, 252A, 253, 257, 292, 335, 520)
- 2017-2020 \*Earth1B - Know Your Planet: Big Earth  
1-unit course that introduces students to big data applications in earth, energy and environment, co-taught (25)
- 2018-2020 \*Earth165H - Big Earth Hackathon  
3-unit course for undergraduate and graduate students that provides a data challenge in a critical societal problem (2018: landslides, 2019: clean water, 2020: wildland fires) (25)
- 2016-2020 \*ESF 10 - Education as Self-Fashioning: Unintended Consequences  
7-unit course for 1st year students that introduces them to unintended consequences of major technological developments and political, industrial and legal decisions (30).
- 2015-2017 THINK 40 - Sustainability Challenges and Transitions  
4-unit Thinking Matters course for 1st year students, co-taught (60)
- 2014, 2015 CME 100 - Vector Calculus for Engineers  
5-unit course that provides vector calculus foundations for engineers and scientists (150)
- 2013-2019 \*ENERGY 101A - Energizing California  
1-unit field trip focused around renewable energy, co-taught (20)
- 2013 \*CEE 14SC - When Engineers Go Sailing  
2-unit Sophomore College focused on sail technology, with special focus on sail design and fluid dynamics and with application to the America's Cup, co-taught (20)
- 2008-2020 ENERGY 102 - Fundamentals of Renewable Power  
3-unit undergraduate course on renewable energy with a focus on technology, co-taught (75)
- 2004, 2005 ENERGY 101 - Energy and the Environment  
3-unit undergraduate course on analysis of energy resources and their environmental impacts, co-taught (75)
- 2001/02/15 ENERGY 120 - Fundamentals of Petroleum Engineering  
3-unit undergraduate course that provides an introduction to fundamental concepts in petroleum engineering (30)
- 1997-2000 Five semester courses in mathematical modeling (2), numerical analysis, fluid mechanics and software engineering at the University of Auckland, New Zealand

## Graduate Courses & Programs

- 2015-2019 \*ICME Teaching Training Program for MS & PhD students  
advanced graduate students design, teach and assess 1-unit courses under guidance of teaching staff and faculty to gain real teaching experience (10)
- 2004-2019 \*CME444 - Computational Consulting  
1-3 units consulting service in computational mathematics and scientific computing offered to researchers on and off campus, runs every quarter (8)
- 2015-2017 \*ENERGY 122 - Lunch with Numerics  
1-unit graduate course in which new ideas in numerical analysis are discussed (5)
- 2014-2017 \*CME 207 - Numerical Methods in Engineering and Applied Sciences  
3-unit graduate course on numerical techniques for solving linear and nonlinear ODEs and PDEs (30)
- 2014-2017 \*CME 306 - Numerical Methods for PDEs  
3-unit PhD core course on numerical techniques for solving linear and nonlinear PDEs (30)
- 2013-2017 \*ENERGY 293C - Energy from Wind and Water Currents  
3-unit graduate course on design and placement optimization of wind and tidal turbines, and wind and tidal energy policies (25)
- 2009-2012 \*CME 302 - Numerical Linear Algebra  
3-unit PhD-level course in matrix computations (70)
- 2005-2013 ENERGY 223 - Reservoir Simulation  
2-unit graduate course on numerical techniques used in reservoir simulation, co-taught (30)
- 2004-2014 CME200 - Linear Algebra with Application to Engineering Computations  
3-unit graduate course on matrix computations and optimization (180)
- 2004-2020 \*ENERGY 359 - Teaching Experience in Energy Resources Engineering  
1-unit course that gives ERE PhD students a first teaching experience
- 2002-2005 ENERGY 224 - Advanced Reservoir Simulation  
3-unit graduate course that discussed critical topics in reservoir simulation, co-taught (20)
- 2002 ENERGY 281 - Applied Mathematics in Reservoir Engineering  
3-unit graduate course that introduces students to important mathematical constructs in reservoir engineering including integral transforms (15)

## Professional Courses & Shortcourses

- 2003-2017 \*Short courses in upscaling, reservoir simulation and uncertainty quantification given regularly at academic institutions and in industry

- 2016-2020 \*Professional Certificate Program in Foundations of Data Science in collaboration with the Stanford Center for Professional Development - 7 online modules in linear algebra, optimization, statistics, python, R, machine learning and data visualization
- 2010, 2013 \*SCI19 - Mathematics behind Modern Technology  
Continuing Education class that introduces participants to the mathematical foundations of search and recommendation tools, the design of marine vessels and airplanes, and the financial sector, amongst others
- 2009 \*SCI24 - What's the Real Deal with Oil, Gas and Coal  
Continuing Education class that discusses current fossil fuel exploration and production, and their environmental impacts

## Books

- 2015 "A Gentle Introduction to Matrix Computations" , with 200 exercises and solutions (available at [margot.stanford.edu](http://margot.stanford.edu))
- 2016 "A Gentle Introduction to Numerical Methods in Science and Engineering" , with 100 exercises and solutions (available at [margot.stanford.edu](http://margot.stanford.edu))

## Outreach

- from 2015 Women in Data Science, conference host and podcast host and highschool outreach program, [wid-conference.org](http://wid-conference.org)
- from 1990 Frequent speaker at regional middle and high schools on mathematics and engineering, and personal experiences as a woman in a male-dominated field
- from 2001 Frequent speaker at colleges and public events around the US and international on mathematics and its applications, big data, energy issues, women in STEM, women in leadership
- 2008 - 2011 Producer of [smartenergyshow.wordpress.com](http://smartenergyshow.wordpress.com), a podcast show highlighting critical issues and developments in energy production and consumption, with 100+ blogposts, 30+ interviews and several mini-documentaries
- 2004-2006 Lead of an engineering team (featured in the National Geographic documentary "Sky Monsters" ) that created a remote-control replica of a soaring pterosaur *Anhanguera Piscator*. The documentary was shown on NG channels worldwide
- from 2008 Public lectures, available online, include
- [Mathematics Gives You Wings](#)
  - [The Beauty I see in Algebra](#)
  - [The Incredible Beauty of a Branch of Mathematics with a Bad Reputation](#)
  - [Jump in, the Water is Lovely](#)
  - [Writing Matters](#)

- [A Tour of Brutus](#)
- [Imposter Syndrome](#)
- [Making Large Scale Solar Work](#)
- [Marine Energy Technology: Waves and Currents](#)

## Advisees

### Postdocs / Research associates

2015-2020	Luiz Sampaio <i>Streamline Simulation for In-Situ Combustion Processes</i>
2015-2018	Alice Harang (co-supervised) <i>Optimization of Large Tidal Turbine Farms</i>
2011-2015	Nick Henderson <i>Acceleration of Low Energy Particle Physics Simulations using GPU Computing</i>
2014-2015	Alex Lapene (co-supervised) <i>In-Situ Combustion Simulation</i>
2012-2013	Anna Nissen <i>Optimization of Streamline Simulation for Thermal Recovery Processes</i>
2005-2006	Stephen Collie <i>Design of a Flying Replica of Anghanguera Piscator</i>
2004-2005	Henrik Loeff <i>Parallelization of Streamline Solvers for Reservoir Processes</i>
2003-2004	Jonas Nilsson <i>Upscaling Strategies for Strongly Heterogeneous Reservoirs</i>
2002-2004	Andrew Crook <i>Experimental Investigation of High-Camber Sail Downwind and Reaching Sails</i>

### Ph.D. Students

2023	Greg Foster <i>Effective Strategies for Decommissioning of Internal Combustion Engine Vehicles</i>
2022	Nadim Saad <i>Nonlinear Coupled Systems of PDEs for Modeling of Multi-Lane Traffic Flow Problems</i>
2020	Matthias Cremon <i>Upscaling for Thermal Recovery Processes</i>
2020	Anjan Dwaraknath <i>Reduced Order Modeling under Uncertainty</i>



2018 Folake Ogunbanwo (co-advisor)  
*High Fidelity Simulation and Upscaling of In-Situ Combustion Processes*

2018 Kyu Koh Yoo (co-advisor)  
*Kinetics Modeling for In-Situ Combustion Processes*

2018 Danielle Madix  
*Numerical Methods for Strongly Nonlinear Parabolic PDEs*

2018 Emmet Caulfield  
*Performance Analysis and Optimization for Reservoir Codes*

2017 Sudarsan Acharya  
*Multigrid Conjugate Gradient Methods*

2017 Malcolm Smeaton (co-advisor)  
*Performance of Tidal Turbines in Large Arrays*

2015 Golnaz Alipour  
*Stress Characterization in Isostatic Granular Materials*

2012 Mohammad Ahmadi (co-advisor)  
*Modelling and Quantification of Structural Uncertainties in Petroleum Reservoirs*

2011 Zhouyuan Zhu  
*Efficient Simulation of Thermal Enhanced Oil Recovery Processes*

2010 Jeremy Kozdon  
*Numerical Methods with Reduced Grid Dependency for Enhanced Oil Recovery*

2009 Axel Strang (co-advisor)  
*Efficient Flight of Pterosaurs*

2009 Qing Chen (co-advisor)  
*Assessing and Improving Steam Assisted Gravity Drainage Performance in Heterogeneous Reservoirs*

2009 Tianhong Chen (co-advisor)  
*New Methods for Accurate Upscaling with Full-Tensor Effects*

2008 Shalini Krishnamurthy  
*Relaxation Methods for Compositional Processes*

2008 Morten Kristensen  
*Development of Models and Algorithms for the Study of Reactive Porous Media Processes*

2007 Matthew Brown  
*Modeling of Tidal Flows in Coastal Regions*

2007 Steve Jachec (co-advisor)  
*Understanding Evolution and Energetics of Internal Tides in Monterey Bay*

2007 Melissa Aczon  
*Stability and Error Estimation using Entropy Functions*

2006 Luiz Sampaio (co-advisor)  
*Large Eddy Simulations of the Thin Plate Separation Bubble at Shallow Incidence*

2004

Stephen Collie

*Application of Computational Fluid Dynamics to Two-Dimensional Downwind Sail Flows*

2004

Bradley Mallison

*Streamline Methods for Compositional Gas Injection Processes*

## Selected Publications

*Not included: conference abstracts*

### Books/Chapters

- 2013 Dawson, C., Gerritsen, M. (editors), “Computational Challenges in the Geosciences” , *IMA Volumes in Mathematics and its Applications* Springer-Verlag New York; 156
- 2012 Thiele, M., Gerritsen, M., Blunt, M. (editors), “Streamline Simulation” , *Getting up to Speed Series*, Society of Petroleum Engineers
- 2008 Sampaio, L. E., Nieckele, A. O., Gerritsen, M., “Performance Assessment of a New Advective Sub-grid Model Through Two Classic Benchmark Test Cases” , *Quality and Reliability of Large-Eddy Simulations* 12: 69-80
- 2005 Fringer, O., Gerritsen, M., Street, R., edited by Lee, Lan, “Internal Waves in Monterey Bay: an application of SUNTANS” , *Environmental Hydraulics and Sustainable Water Management* 67-76

### Selected Journal Papers

- 2020 Koh Yoo, K.H., Sampaio, L., Amanam, U., Gerritsen, M., Kovscek, A., “Thermal Imaging to Visualize and Characterize Combustion Fronts in Porous Media” , *Industrial & Engineering Chemistry Research* 59(5):2181-91
- 2018 Maddix, D., Sampaio, L., Gerritsen, M., “Numerical Artifacts in the Generalized Porous Medium Equation: Why Harmonic Averaging Itself is not to Blame” , *Journal of Computational Physics* 361
- 2018 Maddix, D., Sampaio, L., Gerritsen, M., “Numerical Artifacts in the Discontinuous Porous Medium Equation: How to Avoid Spurious Temporal Oscillations” , *Journal of Computational Physics* 368:277-298
- 2018 Koh Yoo, K.H., Sampaio, L., Gerritsen, M., Kovscek, A., “An Optimization Algorithm for Evaluation of Kinetic Parameters for Crude Oil Combustion” , *Journal of Petroleum Science and Engineering* 169:241-257
- 2016 Dotti, A., Asai, M., Sasaki, T., Kimura, A., Murakami, K., Okada, S., Henderson, N., Gerritsen, M., “MPEXS: A CUDA MonteCarlo of the Simulation of Electromagnetic Interactions International” , *Computing in High Energy and Nuclear Physics*
- 2015 Nissen, A., Zhu, Z., Kovscek, T., Castanier, L., Gerritsen, M., “Upscaling Kinetics for Field-Scale In-Situ-Combustion Simulation” , *SPE Reservoir Evaluation & Engineering* 18 (2): 158-170
- 2015 Lapene, A., Debenest, G., Quintard, M., Castanier, L. M., Gerritsen, M. G., Kovscek, A. R., “Kinetics Oxidation of Heavy Oil. 2. Application of Genetic Algorithm for Evaluation of Kinetic Parameters” , *Energy & Fuels* 29 (2): 1119-1129

- 2015 Ahmadi, M., Christie, M., Gerritsen, M., Bazargan, H., “New Hybrid Cartesian Cut Cell/Enriched Multipoint Flux Approximation Approach for Modelling and Quantification of Structural Uncertainties in Petroleum Reservoirs” , *International Journal for Numerical Methods in Fluids* 80 (3): 181-228
- 2015 Okada, S., Murakami, K., Sasaki, T., Amako, K., Incerti, S., Karamitros, M., Asai, M., Dotti, A., Henderson, N., Gerritsen, M., “Acceleration of Geant-DNA Physics Models Performance using Graphics Processing Units” , *Joint International Conference on Mathematics and Computation Supercomputing in Nuclear Applications (SNA) and the Monte Carlo (MC) Method*
- 2015 Gerritsen, M., Gleich, D., Wang, Y., Meng, X., Ronaghi, F., Saberi, A., “Licht in the Digitale Duiternis dankzij Computertools voor Digital Beheer” , *Nieuw Archief voor Wiskunde* 16 (4): 246-258
- 2015 Ahmady, M., Christie, M., Gerritsen, M., “(In review) Structural Uncertainty Quantification for Petroleum Reservoirs Assisted by an Immersed Interface/ Cartesian Cut Cell Approach” , *Computers & Geosciences*
- 2013 Haines, S., Diffendorfer, J., Balistrieri, L., Berger, B., Cook, T., DeAngelis, D., Dormemus, H., Gautier, D., Gallegos, T., Gerritsen, M., Graffy, E., Hawkins, S., Johnson, K., Macknick, J., McMahon, P., Modde, T., Pierce, B., Schuenemeyer, J., Semmens, D., Simon, B., Taylor, J., Walton-Day, K., “A Framework for Quantitative Assessment of Impacts Related to Energy and Mineral Resource Development” , *Natural Resources Research*, 23 (1): 3-17
- 2013 Kovscek, A. R., Castanier, L. M., Gerritsen, M. G., “Improved Predictability of In-Situ-Combustion Enhanced Oil Recovery” , *SPE Reservoir Evaluation & Engineering* 16 (2): 172-182
- 2013 Nissen, A., Kreiss, G., Gerritsen, M., “High Order Stable Finite Difference Methods for the Schrodinger Equation” , *Journal of Scientific Computing* 55 (1): 173-199
- 2013 Gerritsen, M., Caers, J., “Modeling Spatial and Structural Uncertainty in the Subsurface” , *Computational Challenges in the Geosciences*, IMA Volume 156, 143-167
- 2013 Murakami, K., Henderson, N., Amako, K., Asai, M., Aso, T., Dotti, A., Kimura, A., Gerritsen, M., Kurashige, H., Perl, J., Sasaki, T., “Geant4 Based Simulation of Radiation Dosimetry in CUDA” *2013 IEEE Nuclear Science Symposium and Medical Imaging Conference*
- 2012 Nissen, A., Kreiss, G., Gerritsen, M., “Stability at Nonconforming Grid Interfaces for a High Order Discretization of the Schrodinger Equation” , *Journal of Scientific Computing* 53 (3): 528-551
- 2011 Kozdon, J. E., Mallison, B. T., Gerritsen, M. G., “Multidimensional Upstream Weighting for Multiphase Transport in Porous Media” , *Computational Geosciences* 15 (3): 399-419
- 2011 Lapene, A., Debenest, G., Quintard, M., Castanier, L. M., Gerritsen, M. G., Kovscek, A. R., “Kinetics Oxidation of Heavy Oil. 1. Compositional and Full Equation of State Model” , *Energy & Fuels* 25 (11): 4886-4895
- 2011 Gleich, D. F., Wang, Y., Meng, X., Ronaghi, F., Gerritsen, M., Saberi, A., “Some Computational Tools for Digital Archive and Metadata Maintenance” , *BIT Numerical Analysis* 51 (1): 127-154

- 2011 Kozdon, J., Mallison, B., Gerritsen, M., Chen, W., “Multidimensional Upwinding for Multiphase Transport in Porous Media” , *SPE Journal* 16(2): 263-272
- 2010 Zhu, Z., Gerritsen, M. G., Thiele, M. R., “Thermal Streamline Simulation for Hot Waterflooding” , *SPE Journal* 13(3): 372-382
- 2010 Chen, Q., Gerritsen, M. G., Kovscek, A. R., “Modeling Foam Displacement With the Local-Equilibrium Approximation: Theory and Experimental Verification” , *SPE Journal* 15(1): 171-183
- 2010 Sampaio, L. E., Nieckele, A. O., Gerritsen, M., “Investigating an Advective Approach to Subgrid Modeling in Large-Eddy Simulations” , *Computers & Fluids* 39 (1): 125-136
- 2010 Chen, T., Gerritsen, M. G., Lambers, J. V., Durlofsky, L. J., “Global Variable Compact Multipoint Methods for Accurate Upscaling with Full-Tensor Effects” , *Computational Geosciences* 14 (1): 65-81
- 2009 Kozdon, J., Mallison, B., Gerritsen, M., “Robust Multi-D Transport Schemes with Reduced Grid Orientation Effects” , *Transport in Porous Media* 78 (1): 47-75
- 2009 Gerritsen, M. G., Loef, H., Thiele, M. R., “Parallel Implementations of Streamline Simulators” , *Computational Geosciences* 13 (1): 135-149
- 2009 Kristensen, M. R., Gerritsen, M. G., Thomsen, P. G., Michelsen, M. L., Stenby, E. H., “An Equation-of-State Compositional In-Situ Combustion Model: A Study of Phase Behavior Sensitivity” , *Transport in Porous Media* 76 (2): 219-246
- 2009 Bayati, M., Gerritsen, M., Gleich, D. F., Saberi, A., Wang, Y., “Algorithms for Large, Sparse Network Alignment Problems” , *2009 9th IEEE International Conference on Data Mining* 705-710
- 2008 Gerritsen, M., Kreiss, G., Blumenfeld, R., “Analysis of Stresses in Two-Dimensional Isostatic Granular Systems” , *Physica A - Statistical Mechanics and its Applications* 387 (25): 6263-6276
- 2008 Chen, Q., Gerritsen, M. G., Kovscek, A. R., “Effects of Reservoir Heterogeneities on the Steam-Assisted Gravity-Drainage Process” , *SPE Reservoir Evaluation & Engineering* 11 (5): 921-932
- 2008 Lambers, J. V., Gerritsen, M. G., Mallison, B. T., “Accurate Local Upscaling with Variable Compact Multipoint Transmissibility Calculations” , *Computational Geosciences* 12 (3): 399-416
- 2008 Gerritsen, M., Kreiss, G., Blumenfeld, R., “Stress Chain Solutions in Two-Dimensional Isostatic Granular Systems: Fabric-dependent Paths, Leakage, and Branching” , *Physical Review Letters* 101 (9)
- 2008 Kozdon, J., Gerritsen, M., Christie, M., “Grid Orientation Revisited: Near-well, Early-time Effects and Solution Coupling Methods” , *Transport in Porous Media* 73 (3): 255-277
- 2008 Gerritsen, M., Lambers, J. V., “Integration of Local-Global Upscaling and Grid Adaptivity for Simulation of Subsurface Flow in Heterogeneous Formations” , *Computational Geosciences* 12 (2): 193-208

- 2008 Jessen, K., Gerritsen, M. G., Mallison, B. T., “High-Resolution Prediction of Enhanced Condensate Recovery Processes” , *SPE Journal* 13(2): 257-266
- 2008 Krishnamurthy, S. B., Gerritsen, M. G., “A Variable Relaxation Scheme for Multiphase, Multicomponent Flow” , *Transport in Porous Media* 71 (3): 345-377
- 2008 Collie, S., Gerritsen, M., Jackson, P., “Performance of Two-Equation Turbulence Models for Flat Plate Flows with Leading Edge Bubbles” , *Journal of Fluids Engineering* 130 (2)
- 2008 Bayati, M., Gerritsen, M., Gleich, D., Saberi, A., Wang, Y., “Matching Wikipedia Categories to the Library of Congress Subject Headings with Network Alignment” , *Second ACM International Conference on Web Search and Data Mining*
- 2007 Kristensen, M. R., Gerritsen, M. G., Thomsen, P. G., Michelsen, M. L., Stenby, E. H., “Efficient Integration of Stiff Kinetics with Phase Change Detection for Reactive Reservoir Processes” , *Transport in Porous Media* 69 (3): 383-409
- 2007 Mallison, B. T., Gerritsen, M. G., Matringe, S. F., “Improved Mappings for Streamline-Based Simulation” , *SPE Journal* 11(3): 294-302
- 2007 Jachec, S. M., Fringer, O. B., Street, R. L., Gerritsen, M. G., “Effects of Grid Resolution on the Simulation of Internal Tides” , *International Society Offshore Polar Engineers* 105-111
- 2006 Brown, M., Gerritsen, M., “An Energy-Stable High-Order Central Difference Scheme for the Two-Dimensional Shallow Water Equations” , *Journal of Scientific Computing* 28 (1): 1-30
- 2006 Jachec, S. M., Fringer, O. B., Gerritsen, M. G., Street, R. L., “Numerical Simulation of Internal Tides and the Resulting Energetics within Monterey Bay and the Surrounding Area” , *Geophysical Research Letters* 33 (12)
- 2006 Fringer, O. B., Gerritsen, M., Street, R. L., “An Unstructured-Grid, Finite-Volume, Nonhydrostatic, Parallel Coastal Ocean Simulator” , *Ocean Modelling* 14 (3-4): 139-173
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