WILLIAM BRENT LINDQUIST

Contact

Texas Tech University, 1108 Memorial Circle, Lubbock, TX 79409-1042 +1 806 834 2348 brent.lindquist@ttu.edu http://www.depts.ttu.edu/artsandsciences/DeanOffice/aboutLindquist.php

Education

Cornell UniversityPhD – Physics1981University of ManitobaBSc (Honours) – Physics1975

Dissertation title:Eighth Order Magnetic Moment of the ElectronSupervisor:Toichiro Kinoshita

Administrative Positions & Accomplishments

Texas Tech University (TTU)

July 2014 – Aug 2020 Dean, College of Arts and Sciences (A&S)

College profile

15 academic departments (humanities, social sciences, natural sciences)
559 faculty (402 T/TT, 36% of TTU)
10,115 undergraduate, 1,356 graduate students (30% of TTU)
17 PhD, 32 Masters, 36 Baccalaureate degree programs
2,123 degrees awarded in FY 2019 (25% of TTU)
\$70M annual operating budget

TTU Accomplishments Research and scholarship:

A&S external research awards exceeded \$14.9M/year during my tenure – a record for the College.

Secured the donation to Geosciences of an ExxonMobil core warehouse facility (232,000 boxes of core/cutting samples, 30,000 s.f. building, 0.4 acres land). This established the first physical presence of TTU in Midland, TX, the center of the Permian Basin oil & gas industry.

Funded \$1.4M *Advanced Particle Detector Laboratory* building for Physics & Astronomy and \$750K renovation of the Biological Sciences' greenhouse.

Created the Institute for Peace and Conflict which umbrellas TTU's internationally known Vietnam Center & Sam Johnson Archive, the world's third largest archive of the Vietnam War.

Relocated the Forensic Sciences Institute (FSI) to the Department of Environmental Toxicology. Financed the new laboratory building for FSI.

Relocated the Institute for Environmental and Human Health (TIEHH) from the VPR's office to the College.

Academics:

Oversaw implementation of minimum 2.5 GPA requirements for BS degree majors in the departments of Biological Sciences, Geosciences, Kinesiology & Sport Management, and Physics & Astronomy.

Assisted Vice Provost Durham in planning all academic programs at Texas Tech Costa Rica; this branch campus opened fall 2018. A&S offered one major and all general education courses at TTU-CR.

Moved Wind Energy program into Arts & Sciences with long-term goal of developing a department of renewable energy.

Oversaw extensive curriculum changes in Kinesiology and Sport Management resulting in four new BS and MS degrees plus new PhD program.

Oversaw creation of new MS in Chemical Biology.

Committed five new lines and funded needed renovations for a new MSW program. Program accredited in spring 2018.

Oversaw reduction (by seven credits) of the College's general education requirements for BS degrees. Reduction was proposed by science departments and opposed by some humanities departments. A compromise reduction was reached after a year-long study/conversation within A&S and with the provost's office.

Student Success & Engagement (assisted by assoc. dean for recruitment and retention management)

Created and staffed the A&S Office of Student Success; expanded in 2017 with new initiatives targeting at-risk students and students removed from majors due to low GPAs.

Hired Hanover Research to analyze College undergraduate student recruitment and retention. Results guided initiatives implemented by A&S Offices of Student Success and Recruitment.

Worked with the donor foundation to convert \$5.5M endowment to multi-year recruiting scholarships. As of Fall 2020, the endowment provided scholarships to 102 undergraduates and graduates.

Hired an A&S recruitment officer; created and renovated a dedicated A&S Recruitment Office.

Opened A&S learning community to house 150 residential students.

Created the A&S Student Ambassador program. Each year, 40 student ambassadors assist dean's office with college outreach events and provide tutoring services.

Created A&S Graduation Celebration. 442 graduates along with their parents and friends attended the first (May 2019) post-commencement celebration.

Inaugurated A&S Students Day. Over 1,200 students attended 4th annual event in fall 2019.

Human Resources:

Made recommendations to the provost on 133 tenure and promotion cases.

Revised College tenure and promotion policies to support university's goal to become a nationally known research hub.

Initiated strategic planning in the College's departments. Hiring authorizations guided by department strategic plans. All vacant lines returned to dean's office to facilitate strategic hiring.

Initiated Dean's Staff Awards for Excellence in Advising, Service and Leadership and Dean's Faculty Awards for Excellence in Research and Teaching.

Inaugurated A&S faculty-staff football tailgate; 4th annual tailgate (fall 2019) attracted 331 faculty/staff.

Diversity, Equity & Inclusion (DEI)

Created the A&S Leaders Engaged in Advancing Diversity (A&S LEAD) committee to advance staff DEI issues.

Created the A&S Committee on Diversity, Equity & Inclusion to advance faculty DEI issues.

Created the A&S Dean's Student Advisory Committee to advance student issues, including DEI. The committee is comprised of senators from the A&S student government, and members of the Black, Hispanic and LGBTQIA student associations.

Advocated for implicit bias training for all faculty and staff in the College.

Investigated in a timely manner, following University policies and in coordination with EEO and General Counsel, allegations against faculty members of bullying, sexual harassment and social media harassment.

Alumni outreach: (assisted by A&S alumni director, development officers, marketing director)

Hired first alumni relations director for the College.

Created the first College alumni advisory board, the Dean's Circle. The 25 board members meet twice a year

Inaugurated the A&S Distinguished Alumni and Donor Recognition awards and developed a wall of honor for distinguished alumni. The 5th annual class was inducted in Spring 2020.

Hosted inaugural A&S Gala in Dallas, TX with speaker President George W. Bush. Event attracted 500 alumni/friends.

Instituted annual alumni outreach events in DC and NYC. NYC event attracts between 225 and 500 alumni/friends.

Instituted Dean's Dinners with alumni throughout Texas.

Created a junior alumni network, the Young Innovators.

Inaugurated A&S alumni football tailgate. This annual event attracted between 250 and 500 alumni & friends per tailgate.

Fundraising: (assisted by A&S alumni director, development officers, marketing director)

To build a more mature gift-giving pipeline, the first College fundraising campaign (*Unmasking Innovation: The Campaign for Arts & Sciences*) was started with a five-year \$20M target. As a result of the 2020 pandemic, we fell short of our goal, achieving \$19.6M.

FY 2019 gift giving reached \$6.6M, a 200% increase over FY 2018 and a record for the College. Giving included a \$1M endowment increase for graduate fellowships.

Marketing:

Hired marketing director for the College. The A&S Marketing office provides outreach through social media, public radio, Texas Tech sports network, and print media. Its marketing efforts to highlight faculty and student achievements and college events have been recognized with the following awards:

- 2017 ADDY (silver); Telly (bronze)
- 2018 ADDY (2 silver)
- 2019 ADDY (2 gold, 2 silver); CASE (gold, silver, bronze); Telly (bronze)

Developed the A&S branding tagline: "We Build Innovators." Funded signage for every department to display the College slogan.

State University of New York at Stony Brook (SBU)

Feb. 2014 - July 2014 Deputy Provost

With the VP for Strategic Initiatives, undertook the first review of, and made recommendations on, the performance of SUNY Korea, Stony Brook's international location in Songdo.

Nov. 2011 - Feb. 2014 Chair, Dept. of Applied Math & Statistics

Grew faculty from 20 T/TT to 24.5 T/TT (2 ¹/₂ senior & two junior hires).

Obtained approval from the dean for three additional hires (one senior-hire search in progress when I left).

Led the development team and wrote the successful proposal for a Center for Finance (joint between Applied Math & Statistics, Economics and College of Business).

Worked with the Institute for Advanced Computational Science to develop future hires for the department.

Developed a successful \$1M proposal to the New York State Empire Development Corporation for high-performance computing equipment.

Oct. 2007 - Nov. 2011	Deputy Provost
Aug. 2007 - Sept. 2007	Acting Provost
July 2006 - Sept. 2007	Associate Provost

My portfolio as deputy provost included four major responsibilities:

1. With support from the provost and the dean of CEAS, I led the creation of SUNY Korea, the Stony Brook international location in Songdo, Korea, which opened in March 2012. This three-year effort involved organizing and running two task forces on campus and negotiating with: the SUNY offices of the Chancellor and the Vice-Chancellor for Global Affairs; the New York State offices of Attorney General and State Comptroller; the Incheon Free Economic Zone authority; the Korean ministries of Knowledge Economy (MKE) and Education, Science & Technology (MEST); as well as the city of Incheon. Led the drafting of policies for the new location and obtained initial MSCHE accreditation for the site.

2. Hand-picked by the provost and president to represent the academic sector on the Project Management Office (PMO) for Project50Forward, Stony Brook's initiative to achieve \$30M in operational savings. I served on the PMO with the VP for administration, the VP for finance, the VP for information technology and the university auditor. We managed 14 projects, meeting on a biweekly basis, and reported to a steering committee composed of the university president and vice presidents.

3. Managed all academic space (excluding the Health Sciences Center and hospital), working closely with the VP for administration, the VP for facilities, and affected stakeholders. Major projects that I directed included: moving procurement and facilities operations off-campus, thus freeing room for research and academic facilities; closing a mixed-use building for gut-rehab and permanently relocating the academic, research and administrative units from the building; and closure of all residential programs at Stony Brook's Southampton location, relocating affected administrative personnel and undergraduate programs into main-campus facilities.

4. Worked closely with the provost and the assistant provost for budget to develop the annual budget for the academic sector (\$130M). During this time, Stony Brook saw its flexible-spend state support erode by \$75M (on a base budget of just over \$330M) over a three-year period. Thus, I had several years of hard-earned experience in dealing with cumulative budget deficits that could not be handled on a "pro-rata" basis. I was intimately involved in recommending strategic budget reductions in the administrative and academic units of academic affairs. Throughout the difficult process of fiscal reduction, the primary goal, successfully achieved, was to preserve the academic and research core of the university.

Additional achievements:

Worked closely with the provost to create three interdisciplinary clusters (\$3.0M budget, 16 new faculty), as well as the Laufer Center for Physical and Quantitative Biology, which was seeded by a \$10M gift.

Worked with the vice provost for Brookhaven affairs to create the new Institute for Advanced Scientific Computing, which was seeded by a \$20M gift.

Made recommendations to the provost on permanent appointments to the university, working closely with the assistant provost for human resources and the human resources staff in the provost's office. Over four years, I made recommendations on over 85 faculty promotion and tenure files forwarded by the deans and over 35 permanent staff appointment files forwarded by administrative departments.

On behalf of the president and provost, managed all university recommendations to SUNY for distinguished professor appointments.

Reviewed all proposals for new academic programs in the university for submission to SUNY and the NYS Education Department.

Handled two investigations of scientific misconduct against senior researchers.

Sept. 2002 - June 2006 President, University Senate

Headed the senate's Executive Committee which met bi-weekly.

Presided over the monthly senate meeting.

Served in an advisory role to the provost and university president. During my tenure, relations between the senate and the university's higher administration achieved and sustained a level of respect and effectiveness that had not been present previously.

Academic Positions

Fexas Tech University	
July 2014 - present	Professor, Department of Mathematics & Statistics

State University of New York at Stony Brook

Department of Applied Mathematics and Statistics

Sept. 1999 - June 2006	Associate Chair
Sept. 1994 - July 2014	Professor
Jan. 1989 - Aug. 1994	Associate Professor

New York University Courant Institute of Mathematical Scie

Courant	Institut	e of I	Mathema	atica	Sciences	
~	1000	Б	1000	ъ		

Sept. 1988 - Dec. 1988	Research Associate Professor
Jan. 1985 - Aug. 1988	Research Assistant Professor
Sept. 1981 - Dec. 1984	Associate Research Scientist

Visiting

June 1999 - July 1999	Fellow, Australian National University
Aug. 1996 - July 1997	TICAM Fellow, UT-Austin
Sept. 1996 – Dec. 1996	Visiting Professor, Dept. of Math, UT-Austin

Professional Memberships

American Mathematical Society, 1982 - 2014 American Geophysical Society, 1996 - 2020 American Physical Society, 1979 - 2020 InterPore, 2008 - 2020 Society for Industrial and Applied Mathematics, 1982 - 2020 Society of Petroleum Engineers, 1983 – 2020

Honours

- 2013 Honorary Member, Golden Key International Honour Society
- 2011 Most Cited Article 2005 to 2010, Computers and Geosciences, for *Analysis of vesicular structure of basalts* **31(4)** (2005), 473-487
- 2010 Lee Segel Prize (joint with I.D. Chase), Society of Mathematical Biology
- 2002 Chancellor's Award, Excellence in Teaching, State University New York
- 2002 President's Award, Excellence in Teaching, Stony Brook University various Outstanding Teacher awards:
 - S'13,S'12,F'03,F'02,F'01,F'00,F'97,S'96,S'95,S'94
- 1975 National Research Council of Canada Graduate Scholarship (declined award as graduate studies continued outside of Canada)
- 1975 University of Manitoba Gold Medalist: Science
- 1975 University of Manitoba Gold Medalist: Physics

Graduate Students Supervised

Pantaleao da Silva (PhD 1992) David Coker (PhD 1993) Sang-Moon Lee (PhD 1995) Pawel Dziedzic (MS 1996) Arun Venkatarangan (PhD 2000) Hyunmi Yang (PhD 2001) Wei Guo (PhD 2002) Seungyeon Cho (PhD 2002) Abhishek Datta (MS 2002) Christina Weaver (PhD 2003) Masa Prodanovic (PhD 2005) Sohae Chung (PhD 2005) Hagos Kifle (PhD 2008) Ho Joon Choi (MS 2008) Rong Cai (PhD 2009) Kyung-Taek Jun (MPhil 2014) Joo Won Kim (PhD 2014)

Kou-Kung (Alex) Chang (PhD 1993) Dragan Mirkovic (PhD 1993) William Thistleton (PhD 1996) Wonho Oh (PhD 1998) Woon-Jae Hwang (PhD 2000) Ingrid Koh (PhD 2001) Imbunm Kim (PhD 2002) Hyunkyung Shin (PhD 2002) Adrei Antonenko (MS 2002) Meungkeun Oh (no degree) Anup Krishna (MS 2007) Firas Daahboul (PhD 2006) Daesang Kim (PhD 2008) Yelena Sholokova (PhD 2009) Joong-Hyun Ahn (MPhil 2012) Long Li (PhD 2014) Seunghee Kim (PhD 2018)

Joint supervision with Prof. Svetlozar Rachev

Abootaleb Shirvani (PhD 2021) Yuan Hu (PhD 2022) Bhathiya Divelgama Blessing Omotade Yifan He Thilini Mahanama (PhD 2021) Nancy Asare Nyarko Jagdish Gnawali Peter Yegon

Post-doctoral Fellows Supervised

Pantaleao da Silva (1992-93) Dragan Mirkovic (1993-94) Wonho Oh (1998-02) Ingrid Koh (2001-02) Gang Li (1992-93) Felipe Pereira (1991-93; joint with J. Glimm) Woon-Jae Hwang (2000-01) Daesang Kim (2008-13) Joint supervision with Prof. Svetlozar Rachev Davide Lauria (2022-23) Kiril Golubnichiy (2024-2025)

Consulting

Exxon Research and Engineering, Annondale, NJ Petroleum Recovery Research Center, New Mexico Institute of Technology Brookhaven National Laboratory Department of Mathematics, University of Iowa Elf Geosciences Research Center, London Institute for Energy Technology, Norway

Professional Service

Review Editor, Editorial Board of Mathematical Finance, Frontiers in Applied Mathematics and Statistics, 7/16/2021-present

DOE Basic Energy Sciences Workshop on Basic Research Needs for the Energy-Water Nexus. North Bethesda, MD, 01/04-06/2017

Chair, External Review Committee, Institute for Advanced Computational Science, Stony Brook University, 09/06-08/2017

Panelist, Facilitating 21st Century Energy Systems, DOE, 2/21-23, 2007

Panel co-lead, Computational Subsurface Sciences Workshop, DOE, 1/10-11, 2007

Discussion Leader, Gordon Research Conference on Flow in Permeable Media, 7/30-8/4, 2006

- Mini-symposium Organizer, SIAM Conference on Mathematical & Computational Issues in the Geosciences, Avignon, France, 6/7-10/2005
- On-site Review Panel, NSF Institutes in the Mathematical Sciences, 2004-05
- Panel, National Research Council Associateship Program, 2004-06
- Expert Panel, NSERC (Canada) Networks of Centres of Excellence, 2002-04
- AMS-IMS-SIAM Committee on Joint Summer Research Conferences in the Mathematical Sciences, 7/1/1997 - 6/30/2001
- Grant Selection Committee for Pure and Applied Mathematics, NSERC (Canada), 7/1/1998 6/30/2001
- Vice Chair, SIAM Activity Group on Geosciences, 1/1/1998 12/31/2000
- Newsletter Editor, SIAM Activity Group on Geosciences, 1/1/1992 12/31/2000
- Selection Panel, NSF Small Business Innovation Research Program, 9/1998
- Expert Panel, NSERC (Canada) Networks of Centres of Excellence, 6/1998
- Selection Panel -- Collaborative Research Projects, NSERC (Canada), 7/1/1995 6/30/1996
- Organizer, Regional Workshop on Ground Water Interests, Dept. of Applied Mathematics & Statistics, Stony Brook University, 2/26/1993
- Organizer, Special Session on Scaling in Porous Media, 9th International Conference on Computational Methods in Water Resources, Denver, CO, 6/8-12/1992

Mini-symposium co-organizer, ICIAM 91, Washington, DC, 7/8-10/1991

- Vice Chair, Gordon Research Conference: Modeling Flow in Permeable Media, Plymouth State College, Plymouth, NH, 8/15-19/1988
- Co-Chair, AMS/SIAM/INS Joint Summer Research Conference: Current Progress in Hyperbolic Systems, Riemann Problems of Computation, Bowdoin College, 7/16-22/1988

Reviewer for DOE proposals in the Applied Mathematics, Geosciences, EPSCOR and SBIR programs

Reviewer for NSF proposals in the Mathematical Sciences, SBIR, and CAREER programs Reviewer for NSERC (Canada) proposals in the Mathematical Sciences Proposal reviewer for the Research Council of Norway Reviewer for the following journals:

Advances in Water Research, Applied Mathematics Letters, Applied Numerical Mathematics, Computational Geosciences, In Situ, J. Stochastic Hydrology, J. Computational Physics, J. Differential Equations, J. Geophysical Research, Matematica Aplicada e Computacional, J. Nonlinear Analysis, SIAM J. Mathematical Analysis, SIAM J. Scientific Computing, Transport in Porous Media, Water Resources Research, Computers and Geoscience, J. Colloid and Interface Science, J. Mathematical Vision and Imaging.

Departmental and University Service

University – Texas Tech University
Dean, College of Arts & Sciences, 2014-2020
Chair, Dean of Law School Search Committee, 2017
Member, Assoc. Vice Chancellor for Advancement Search Committee, 2017
Member, VP Research Search Committee, 2017
Judge, Red Raider Startup Competition, 10/08/17
Member, Facilities Allocation Committee, 2016-2019
Member, University President Search Committee, 2016
Member, Experimental Sciences Building II Planning Committee, 2015-2016
Member, International Affairs Council, 2015-2020
Member, Undergraduate Recruitment Policy Committee, 2014

Department – Mathematics and Statistics, Texas Tech University Created Financial Mathematics track in MS degree (with Zari Rachev) Convener, Financial Mathematics seminar

Department - Applied Mathematics and Statistics, Stony Brook University Chair, 2011-2014 Associate Chair, 1999-2006 Executive Committee, 1999-2006 Graduate Student Recruitment/Admissions Committee Faculty and Postdoctoral Fellow Hiring Committees

University - Stony Brook University Deputy Provost, 2014 Director to the Provost on SUNY Korea, 2012-14 Deputy Provost, 2007-11 Acting Provost, Aug./Sept. 2007 Associate Provost, 2006-07 University Senate President, 2002-06 Senate Vice-President for Engineering and Applied Sciences (CEAS), 2001-02 Senator for CEAS, 1993, 1995-2002 University Senate Undergraduate Council, 1995-96, Chair 1998-99 University Senate Coordinating Council, 1998-99 University Senate Committee for Campus Environment, 1997-98 Chair, Provost's Steering Committee on Advising, 1999-2001 CEAS Curriculum and Teaching Policy Committee, 1991-2006 Chair, 1995-96, 1998-99

Pedagogical Development

- Fall 2020:Co-led (with Prof. Svetlozar Rachev) the development a new financial
mathematics track in the PhD program.
- Spring 2006: Developed a new course, AMS 538 Methods in Neuronal Modeling, as an upper-level elective in the Computational Biology graduate track.
- Spring 2006: Led the development of a new graduate track in computational biology.
- Spring 1996: Developed new course, AMS322 Groundwater Modeling, as one of the core course offerings in the Applied Environmental Sciences track.
- Spring 1996: Developed a new undergraduate track, Applied Environmental Sciences, offered jointly by the Department of Applied Mathematics and Statistics (AMS) and the Marine Science Research Center, and administered by the AMS Department. This is a 71-credit track of required courses leading to a Bachelor of Science in Applied Mathematics.
- Fall 1995: Developed new course, AMS321 Computational Projects in Applied Mathematics, a computer lab-based undergraduate course which introduced sophomores to computational mathematics.
- Fall 1992: Developed new course, AMS562 Numerical Hydrology, a service course for the Geosciences Department's Master of Science in Hydrology program.
- Spring 1989: Developed new course, AMS528 Numerical Analysis III, the third semester course (numerical PDEs) in the AMS graduate computational math curriculum.

Research

My research career has impacted five areas:

- 1) Computational financial mathematics: dynamic asset pricing; derivative pricing; portfolio optimization; risk analytics.
- 2) Flow in porous media at the pore scale; I was an early adopter of 3D computed microtomography and automated 3D image analysis as research tools.
- 3) Application of tools developed in area 2) toward neuroscience, specifically automated 3D identification of neuron morphology.
- 4) Flow in porous media at the field scale, particularly the development and application of the front-tracking method, Riemann problems, and scale-up theory for such flows.

5) Computation of the eighth-order QED contribution to the magnetic moment of the electron (with Toichiro Kinoshita). The electron magnetic moment is the most accurately measured and theoretically computed property of any fundamental particle in physics.

Patent Application

System and Method for Determining Neuronal Morphology and Effect of Substances Thereon. I. Koh, W.B. Lindquist and K. Svoboda. 2002. Publication number US-20020004632

Funding Support

I have served as PI or co-PI on \$3M in administrative grants and \$18.5M in research grants.

Administrative Funding

Title:Helen Devitt Jones Graduate Fellowship Endowment – College of Arts & SciencesAgency:Helen Jones FoundationAmount:\$1,000,000Awarded:07/15/19

Title:SUNY Korea Operation Fund Support AgreementAgency:Incheon Free Economic Zone AuthorityRole: co-PIAmount:\$1,000,000Period: 9/1/11-8/31/12

Title:Stony Brook Songdo Branch Campus Planning Fund Support AgreementAgency:Incheon Free Economic Zone AuthorityRole: PIAmount:\$1,000,000Period: 12/28/08-12/31/10

Research Funding

Title:	Commercial Real Estate Analytics	
Agency:	Jantz Analytics	Role: PI
Amount:	\$143,049	Period: 02/01/20-08/31/22
Title:	Development of an Accredited Che	emical Forensics Laboratory in Iraq
Agency:	US Dept of State	Role: co-PI
Amount:	\$592,943	Period: 10/01/16-09/30/19
Note:	Due to security concerns in Iraq, the after one year.	is effort was terminated by the U.S. Dept. of State
Title:	Transforming Long Island Economic Development through High Performance Computing	
Agency:	NYS Empire Development Corp.	Role: PI (until I left Stony Brook)
Amount:	\$1,000,000	Period: 1/1/14-12/31/18
Title:	Changes of Porosity, Permeability	and Mechanical Strength Induced by Carbon
	Dioxide Sequestration	
Agency:	NSF	Kole: co-Pl
Amount:	\$653,872	Period: 6/1/10-5/31/13

Title:	UBM - Institutional: Research Trai	ining in Mathematical Biology
Agency:	NSF	Role: co-PI
Amount	: \$930,513	Period: 9/1/07-8/31/12
Title: Agency:	Effects of Pore Structure Change a Transport and Reaction Rate Upsc DOE, ERSP	nd Multi-Scale Heterogeneity on Contaminant aling Role: PI Period: 10/1/08-9/30/11
Amount	· φ1,5-7,770	1 child. 10/1/00-9/30/11
Title: Agency: Amount	Up-Scaling Geochemical Reaction DOE : \$443,145	Rates for CO ² in Deep Saline Aquifers Role: co-PI Period: 2/1/05-8/31/08
Title: Agency: Amount	Soil Pore Structure Changes Induce Stony Brook/BNL : \$25,000	ed by Caustic Waste Solutions Role: PI Period: 6/1/07-5/31/08
Title: Agency: Amount	Interface Physics in Porous Media Sandia National Laboratory : \$960,000	Role: co-PI Period: 10/1/05-9/30/08
Title: Agency: Amount	Morphological Analysis of Trabect Advanced Acoustic Concepts (Hau : \$10,000	ular Bone Structure ppauge, NY) and SensorCAT Role: PI Period: 3/1/06-8/30/06
Title:	Research and Educational Efforts f Architectures in Computational Sc	for Enhancing Applications of Ultrascalable ience
Agency:	IBM	Role: co-PI
Amount	: \$1,000,000	Period: 7/1/05-6/30/06
Title: Agency: Amount	Morphological Analysis of Trabect Advanced Acoustic Concepts and I : \$24,664	ular Bone Structure NYSTAR Role: PI Period: 1/1/05-12/31/05
Title:	Medial Axis Analysis Applied to T	omographic Images of Fibrous Material
Agency:	Kimberly-Clark Corporation	Role: PI
Amount	: \$38,252	Period: 4/15/04-4/14/05
Title: Agency: Amount	Pore Scale Geometric and Fluid Di DOE : \$196,237	stribution Analysis Role: PI Period: 9/1/01-8/31/04
Title:	Automated Morphometry of Dendr	ritic Spines
Agency:	NSF	Role: PI
Amount	: \$180,000	Period: 9/30/01-8/31/03

Title: Agency:	Medial Axis Analysis Applied to T Kimberly-Clark Corporation	omographic Images of Fibrous Material Role: PI
Amount:	\$35,458	Period: 4/15/03-4/14/04
Title:	Automated Analysis of Neurite Ou	tgrowth of Explants
Agency:	Brookhaven National Laboratory	Role: PI
Amount:	\$21,470	Period: 9/1/01-5/30/02
Title:	VIGRE: Interconnecting Research Brook	and Education in the Mathematical Sciences at Stony
Agency:	NSF	Role: co-PI
Amount:	\$2,606,355	Period: 1/1/00-12/31/04
Title:	Medial Axis Analysis Applied to T	omographic Images of Fibrous Material
Agency:	Clark Corporation	Role: PI Device de $2/1/0$ ($4/14/0$)
Amount:	\$216,589	Period: 3/1/96-4/14/03
Title:	Theory and Stochastic Simulation I Related Applications	Methods for Multi Scale Problems with Energy-
Agency:	DOE	Role: co-PI
Amount:	\$1,822,414	Period: 2/1/99-1/31/02
Title:	Microscale Geometric Analysis of	Geologic Porous Media
Agency:	DOE	Role: PI
Amount:	\$165,000	Period: 9/1/98-8/31/01
Title:	Automated Analysis of Neurite Ou	tgrowth of Explants
Agency:	Swartz Initiative for Computational	Neuroscience Role: PI
Amount:	\$30,468	Period: 9/1/00-8/31/01
Title:	Stochastic Partial Differential Equa Multiscale Phenomena	tions Applied to the Predictability of Complex
Agency:	DOE	Role: co-PI
Amount:	\$300,000	Period: 8/1/98-7/31/01
Title:	Enhanced Resolution Simulation M Applications	lethods, Mathematical Theory, and Energy Related
Agency:	DOE	Role: co-PI
Amount	\$1,188,696	Period: 2/1/96-1/31/99
1 1110 0110	¢1,100,070	
Title:	Los Alamos - Stony Brook Collabo	bration
Agency:	Los Alamos National Laboratory	Role: co-PI
Amount:	\$78,750	Period: 3/18/98-5/31/98
Title: Agency:	Statistical Characterization of the T Sandia National Laboratory	Three-Dimensional Microgeometry of Porous Media Role: PI
0)	

Amount	\$100,000	Period: 11/15/96-9/30/98
Title:	Medial Axis Analysis of Porous Me	edia
Agency:	DOE	Role: PI
Amount:	\$100,968	Period: 9/1/95-8/31/98
Title:	Partnership in Computational Scier	nce
Agency:	DOE	Role: co-PI
Amount:	\$469.200	Period: 7/15/95-7/14/97
Title: Agency: Amount:	Traineeship for Pawel Dziedzic Brookhaven National Laboratory \$14,030	Role: PI Period: 10/1/95-8/31/96
Title:	Computations and Theory for Disc Differential Equations	ontinuous and Stochastic Solutions of Partial
Agency:	DOE	Role: co-PI
Amount:	\$1,176,363	Period: 1/1/93-1/31/96
Title:	3-Dimensional Imaging of Drill Co Microtomography	ore Samples Using Synchrotron Computed
Agency:	DOE	Role: PI
Amount:	\$64,430	Period: 5/1/92-4/30/95
Title:	Long Island's Groundwater Hydrol	ogy
Agency:	Suffolk County Water Authority	Role: co-PI
Amount:	\$100,000	Period: 3/1/94-2/27/95
Title:	Evaluation of PICS Groundwater C	Code GCT 1.0
Agency:	Brookhaven National Laboratory	Role: PI
Amount:	\$20,000	Period: 4/22/94-9/30/94
Title: Agency: Amount:	High Performance Computing Equ and First Principles Simulation of I DOE \$700,000	ipment for Environmental Remediation Modeling Material Properties Role: co-PI Period: 4/15/93-4/14/94
Title:	High Performance Computing of G	round-water Transport
Agency:	Oak Ridge National Laboratory	Role: co-PI
Amount:	\$838,600	Period: 6/1/92-4/31/95
Title: Agency: Amount:	Modeling of Complex Continua DOE \$1,176,391	Role: co-PI Period: 1/1/90-12/31/92

Title: Fundamental Solutions of Multiphase Flow

Agency: NATO Amount: \$40,000 Role: co-PI Period: 1/10/89-9/31/91

Title: Heterogeneities in Reservoirs Agency: Petrocomp Software Amount: \$5,000

Role: PI Period: 2/1/89-7/30/89

Publications

My publication statistics are 8,086 citations, h-index 43, i10-index 81 (Google Scholar as of 12/07/2024). *The number* (cXX) *in parentheses at the end of each publication is the citation count*.

Special Issues Edited

- W. B. Lindquist and S. T. Rachev. Featured Papers in Mathematics and Finance, 2nd Edition J. Risk Financial Manag. https://www.mdpi.com/journal/jrfm/special_issues/ZFXME9LWX5 Article submission deadline: Dec. 31, 2025.
- W. B. Lindquist and S. T. Rachev (Eds). *Featured Papers in Mathematics and Finance*. Basel: MDPI (2025). Articles published in this special issue: 28. ISBN 978-3-7258-3263-7 (Hbk); ISBN 978-3-7258-3264-4 (PDF); 560 pages. https://www.doi.org/10.3390/books978-3-7258-3264-4
- W. B. Lindquist and S. T. Rachev (Eds). ESG-Investing and ESG-Finance. J. Risk Financial Manag. https://www.mdpi.com/journal/jrfm/special_issues/YL8TNBCT6I Articles published in this special issue: 10.

W. B. Lindquist and S. T. Rachev (Eds). Mathematical and Empirical Finance. J. Risk Financial Manag. https://www.mdpi.com/journal/jrfm/special_issues/Mathematical_and_Empirical_Finance Articles published in this special issue: 23.

- M. Hilpert and W. B. Lindquist (Eds). Pore-scale Modeling. Computational Methods in Water Resources 2004 International Conference (CMWR 2004), Chapel Hill, NC, USA. Adv. Water Resourc. 30 (2007) 169-300.
- W.B. Lindquist (Ed). Current Progress in Hyperbolic Systems: Riemann Problems and Computations, *Contemporary Math.*, **100** (1989) 1-367. Providence, RI: American Mathematical Society. (c6)

Working monograph

Y. He, D. Lauria, W. B. Lindquist, and S.T. Rachev. Risk Management for Cryptocurrency Portfolios. Berlin: De Gruyter

Working papers

- J. Gnawali, N. Asare-Nyarko, B. Divelgama, P. Yegon, B. Omotade, W.B. Lindquist, S.T. Rachev, and F.J. Fabozzi. A comparison of modernized Bachelier v Black-Scholes-Merton models.
- B. Divelgama, A. Shirvani. N. Asare-Nyarko, B. Omotade, W.B. Lindquist, S.T. Rachev, and F.J. Fabozzi. ESG option pricing with path-dependent pricing trees in the Bachelier-Black-Scholes-Merton market model.
- P. Yegon, A. Shirvani, J. Gnawali, B. Omotade, W.B. Lindquist, S.T. Rachev and F.J. Fabozzi. Option pricing in the presence of market microstructure noise

Preprints

Revise & resubmit

D. Lauria, W.B. Lindquist and S.T. Rachev. Enhancing CVaR portfolio optimisation performance with GAM factor models. (Preprint: arXiv: 2401.00188)

Submitted

- G. Torri, R. Giacometti, D. Dentcheva, S. T. Rachev, W. B. Lindquist. ESG-coherent risk measures for sustainable investing. Submitted to *Quant. Finance* (Preprint: arXiv: 2309.05866v2)
- M. Mohammadi and W.B. Lindquist. Prediction of stable GARCH time series using auxiliary processes. Submitted to *Metrika*
- M. Mohammadi and W.B. Lindquist. Time series representation by a finite sequence of values. Submitted to *J. Time Series Anal.*

Accepted

Published

- D. Lauria, W.B. Lindquist, S.T. Rachev and Y. Hu. Bridging asset pricing and market microstructure: Option valuation in Roll's framework. J. Risk Financial Manag. 18 (2025) 230. https://doi.org/10.3390/jrfm18050230.
- N. Asare-Nyarko, A. Shirvani, B. Divelgama, P. Yegon, W.B. Lindquist, S.T. Rachev, and F.J. Fabozzi. ESG financial market with informed traders within the Bachelier-Black-Scholes-Merton model, J. Sustain. Res. 7 (2025) e250022. https://doi.org/10.20900/jsr.20250022.
- J. Gnawali, W. B. Lindquist, and S.T. Rachev. Hedging via perpetual derivatives: Trinomial option pricing and implied parameter surface analysis, *J. Risk Financial Manag.* **18** (2025) 192. https://doi.org/10.3390/jrfm18040192.

- D. Lauria, W.B. Lindquist, S. Mittnik, and S.T. Rachev. Environmental, social and governancevalued portfolio optimization and dynamic asset pricing, *J. Risk Financial Manag.* 18 (2025) 153. https://doi.org/10.3390/jrfm18030153. (c5)
- W. B. Lindquist and S. T. Rachev. Alternatives to classical option pricing, Ann. Oper. Res. 346 (2025) 489-509. https://doi.org/10.1007/s10479-024-06213-z.
- Y. Hu, W.B. Lindquist and S.T. Rachev. Sustainability-valued discrete option pricing in complete markets, *J. Sustain. Finance Invest.* **15** (2025) 403-437. https://doi.org/10.1080/20430795.2024.2330518. (c1)
- D. Lauria, J. Park, Y. Hu, W. B. Lindquist, S.T. Rachev, and F.J. Fabozzi. An empirical implementation of the shadow riskless rate, *Risks*. **12** (2024) 187. https://doi.org/10.3390/risks12120187.
- W. B. Lindquist, S. T. Rachev, J. Gnawali, and F. J. Fabozzi. Dynamic asset pricing in a unified Bachelier-Black-Scholes-Merton model, *Risks* 12 (2024) 136. https://doi.org/10.3390/risks12090136.
- J. R. Bailey, W. B. Lindquist and S. T. Rachev. Hedonic models incorporating ESG factors for time series of average annual home prices, *J. Risk Financial Manag.* 17 (2024) 375. https://doi.org/10.3390/jrfm17080375.
- A. Shirvani, S. Mittnik, W.B. Lindquist, and S.T. Rachev. Bitcoin volatility and intrinsic time using double-subordinated Lévy processes, *Risks* 12 (2024) 82. https://doi.org/10.3390/risks12050082. (c2)
- Y. Hu, W. B. Lindquist, S. T. Rachev, and F. J. Fabozzi. Option pricing using a skew random walk pricing tree, *J. Risk Financial Manag.* 17 (2024) 138. https://doi.org/10.3390/jrfm17040138. (c1)
- M. Mohammadi and W.B. Lindquist. A paradox in the theory of prediction, *Fluct. Noise Lett.*, **22** (2023) 2350038. https://doi.org/10.1142/S0219477523500384.
- J.R. Bailey, D. Lauria, W.B. Lindquist, S. Mittnik, S.T. Rachev. Hedonic models of real estate prices: GAM models; environmental and sex-offender-proximity factors, *J. Risk Financial Manag.*, **15** (2022) 601. https://doi.org/10.3390/jrfm15120601. (c2)
- W.B. Lindquist, S.T. Rachev, Y. Hu, and A. Shirvani. Advanced REIT Portfolio Optimization: Innovative Tools for Risk Management. Dynamic Modeling and Econometrics in Economics and Finance, Vol. 30. Cham: Springer (2022). ISBN: 978-3031152856; (258 pages). https://doi.org/10.1007/978-3-031-15286-3. (c6)
- Y. Hu, W.B. Lindquist, S.T. Rachev, A. Shirvani, and F.J. Fabozzi. Market complete option valuation using a Jarrow-Rudd pricing tree with skewness and kurtosis, *J. Econ. Dyn. Control.* 137 (2022), 104345. https://doi.org/10.1016/j.jedc.2022.104345. (c5)

- W.B. Lindquist and S.T. Rachev. Taylor's law and heavy-tailed distributions, *Proc. Natl. Acad. Sci. USA.*, **118** (2021) e2118893118. https://doi.org/10.1073/pnas.2118893118.
- Y. Hu, W.B. Lindquist and F.J. Fabozzi. Modelling price dynamics, optimal portfolios, and option valuation for crypto assets, *J. Altern. Invest.*, **24** (2021), 75-93. https://doi.org/10.3905/jai.2021.1.133
- Y. Hu, W.B. Lindquist and S.T. Rachev. Portfolio optimization constrained by performance attribution, *J. Risk Financial Manag.*, **14** (2021) 201. (c4) https://doi.org/10.3390/jrfm14050201.
- Y. Hu, A. Shirvani, W.B. Lindquist, F.J. Fabozzi, and S.T. Rachev. Option pricing incorporating factor dynamics in complete markets, *J. Risk Financial Manag.*, **13** (2020) 321. https://doi.org/10.3390/jrfm13120321. (c7)
- K.A. Chang and W.B. Lindquist. The dynamics of gas bubble formation at saturated conditions in porous media flow, *Sci. Rep.*, **10** (2020) 13175. (c2) https://doi.org/10.1038/s41598-020-69506-w.
- I.D. Chase and W.B. Lindquist. The fragility of individual-based explanations of social hierarchies: A test using animal pecking orders, *PLOS ONE*, **11** (2016) e0158900. https://doi.org/10.1371/journal.pone.0158900. (c32)
- J. Kim, D. Kim and W.B. Lindquist. A re-examination of throats, *Water Resour. Res.*, **49** (2013) 7615-7626. doi: 10.1002/2013WR014254. (c16) (*ftp.ams.sunysb.edu/pub/papers/2013/susb13_04.pdf*
- D. Kim and W.B. Lindquist. Effects of network dissolution changes on pore-to-core up-scaled reaction rates for kaolinite and anorthite reactions under acidic conditions. *Water Resour. Res.*, **49** (2013) 7575-7586. https://doi.org/10.1002/2013WR014254. (c8)
- L. Beckingham, C.A. Peters, W. Um, K.W. Jones and W.B. Lindquist. 2D and 3D imaging resolution trade-offs in quantifying pore throats for prediction of permeability, *Adv. Water Res.*, **62** (2013) 1-12. https://doi.org/10.1016/j.advwatres.2013.08.010. (c89)
- K.W. Jones, R. Tappero, J. Wang, Y.-C. Chen, Q. Yuan, W.B. Lindquist, L. Crandell, C.A. Peters, W. Um, L. Newman, T. Sabo-Attwood and C. Moyer. Tomographic investigations relevant to the rhizosphere, in *Soil-Root-Water Processes: Advances in Tomography and Imaging*, S.H. Anderson and J.W. Hopmans (eds.), SSSA Special Publication 61, (2013) 23-38, Soil Science Society of America, Madison, WI. (c8) *ftp.ams.sunysb.edu/pub/papers/2011/susb11_05.pdf*
- K.A. Chang and W.B. Lindquist. A network model for the genesis and migration of gas phase, *Comput. Geosci.*, **17** (2013) 67-81. https://doi.org/10.1007/s10596-012-9314-2. (c5)

- L. Crandell, C.A. Peters, W. Um, K.W. Jones and W.B. Lindquist. Changes in the pore network structure of Hanford sediment after reaction with caustic tank wastes, *J. Contam. Hydrol.*, **131** (2012) 89-99. https://doi.org/10.1016/j.jconhyd.2012.02.002. (c48) *ftp.ams.sunysb.edu/pub/papers/2011/susb11_06.pdf*
- D. Kim and W.B. Lindquist. A semi-analytic model for the computation of imbibition through throats of polygonal cross section, *Water Resour. Res.*, **48** (2012) W04529. https://doi.org/10.1029/2011WR011111. (c9)
- D. Kim and W.B. Lindquist. Dependence of pore-to-core up-scaled reaction rate on flow rate in porous media, *Trans. Porous Media*, **89**(3) (2011) 459-473; republished in a special issue *ibid*, **94**(2) (2012) 555-569. https://doi.org/10.1007/s11242-011-9780-3. (c28)
- D. Kim, C.A. Peters and W.B. Lindquist. Upscaling geochemical reaction rates accompanying acidic CO₂-saturated brine flow in sandstone aquifers, *Water Resour. Res.*, **47** (2011) W01505. https://doi.org/10.1029/2010WR009472. (c89)
- P.B. Kerkar, K.W. Jones, R. Kleinberg, W.B. Lindquist, S. Tomov, H. Feng and D. Mahajan. Direct observations of three dimensional growth of hydrates hosted in porous media, *Appl. Phys. Lett.*, **95**(2) (2009) 024102. https://doi.org/10.1063/1.3120544. (c88)
- R. Cai, W.B. Lindquist, W. Um and K.W. Jones. Tomographic analysis of reactive fluid induced pore structure changes in flow column experiments, *Adv. Water Resour.*, **32** (2009) 1396-1403. https://doi.org/10.1016/j.advwatres.2009.06.006. (c42)
- Y. Sholokova, D. Kim and W.B. Lindquist. Network flow modeling via lattice-Boltzmann based channel conductance, *Adv. Water Resour.*, **32**(2) (2009) 205-212. https://doi.org/10.1016/j.advwatres.2008.10.016. (c58)
- W.B. Lindquist and I.D. Chase. Data-based analysis of winner-loser models of hierarchy formation in animals, *Bull. Math. Bio.*, **71**(3) (2009) 556-584. https://doi.org/10.1007/s11538-008-9371-9. (c58)
- I.D. Chase and W.B. Lindquist. Dominance hierarchies as a model of social structure in small groups. *The Oxford Handbook of Analytical Sociology*, P. Hedstrom and P. Bearman (eds.). Oxford University Press, Oxford, UK, 2009, 800 pp. (c3) *ftp.ams.sunysb.edu/pub/papers/2008/susb08_02.pdf*
- R.S. Seright, W.B. Lindquist and R. Cai. Pore-level examination of gel destruction during oil flow, *SPE J.*, **14** (2009) 472-476. https://doi.org/10.2118/112976-PA. (c6)
- D.L. McLean, M.A. Masino, I.Y.Y. Koh, W.B. Lindquist and J.R. Fetcho. Continuous shifts in the active set of spinal interneurons drive changes in locomotor speed, *Nature Neurosci.*, **11** (2008) 1419-1429. https://doi.org/10.1038/nn.2225. (c281)

- L. Pyrak-Nolte, W.B. Lindquist and J. Nordbotten. Modeling Multiple Processes at Interacting Scales. In *Basic Research Needs for Geosciences: Facilitating 21st Century Energy Systems*, a report of the BES Workshop on Basic Research Needs for Geosciences, Feb. 21-24, 2007. pp. 51-55. US DOE Office of Science. *http://www.sc.doe.gov/bes/reports/list.html*
- L. Berlyand, W.B. Lindquist, K. Lipnikov and D. Moulton. Multi-Scale Analysis. In *Report of the Computational Subsurface Sciences Workshop*, Jan. 9-12, 2007, pp. 181-192. US DOE Office of Science.
- M. Hilpert and W.B. Lindquist. Pore-scale Modeling, *Adv. Water Resour.*, **30**(2) (2007) 169-170. https://doi.org/10.1016/j.advwatres.2006.01.007. (c1)
- M. Prodanovic, W.B. Lindquist and R.S. Seright. 3D Image-based characterization of fluid displacement in a Berea core, *Adv. Water Resour.*, **30**(2) (2007) 214-226. https://doi.org/10.1016/j.advwatres.2005.05.015. (c220)
- F.C. Zhou, B. Anthony, K.W. Dunn, W.B. Lindquist, Z. Xu and P. Deng. Chronic alchohol drinking alters neuronal dendritic spines in the brain reward center nucleus accumbens, *Brain Res.*, **1113**(1) (2007) 148-161. https://doi.org/10.1016/j.brainres.2006.11.046. (c121)
- K.W. Jones, P.B. Kerkar, D. Mahajan, W.B. Lindquist and H. Feng. Microstructure of natural hydrate host sediments, *Nucl. Instr. Meth. B.*, **261**(1-2) (2007) 504-507. https://doi.org/10.1016/j.nimb.2007.03.032. (c21)
- M. Prodanovic, W.B. Lindquist and R. Seright. Residual fluid blobs and contact angle measurements from X-ray images of fluid displacement. Proceedings, International Conference on Computational Methods in Water Resources XVI, P.J. Binning, P. Engesgaard, H. Dahle, G.F. Pinger and W. G. Gray (eds.), Copenhagen, Denmark, June 19-22, 2006. (c10) ftp.ams.sunysb.edu/pub/papers/2006/susb06_02.pdf
- M. Prodanovic, W.B. Lindquist and R.S. Seright. Porous structure and fluid partitioning in polyethylene cores from 3D X-ray microtomographic imaging, *J. Colloid Interf. Sci.*, **298**(1) (2006) 282-297. https://doi.org/10.1016/j.jcis.2005.11.053. (c180)
- W.B. Lindquist. The geometry of primary drainage, *J. Colloid Interf. Sci.*, **296**(2) (2006) 655-668. https://doi.org/10.1016/j.jcis.2005.09.041. (c56)
- R.S. Seright, M. Prodanovic and W.B. Lindquist. X-ray computed microtomography studies of fluid partitioning in drainage and imbibition before and after gel placement: disproportionate permeability reduction, SPE J., 11(2) (2006) 159-170. https://doi.org/10.2118/89393-PA. (c73)
- W.B. Lindquist, S.-M. Lee, W. Oh, A.B. Venkatarangan, H. Shin, M. Prodanovic. 3DMA-Rock: A software package for automated analysis of rock pore structure in 3-D computed

microtomography images, Online manual, SUNY Stony Brook, 2005. http://www.ams.sunysb.edu/~lindquis/3dma/3dma_rock/3dma_rock.html (c49)

- W.B. Lindquist, S. Chung, J. Pinezich, E. Gorin, Y.-X. Qin. Quantifying topological change in bone under uniform erosion. Stony Brook University report, SUNYSB-AMS-05-09, 2005. *ftp.ams.sunysb.edu/pub/papers/2005/susb05_09.pdf*
- H. Shin, W.B. Lindquist, D.L. Sahagian and S.-R. Song. Analysis of the vesicular structure of basalts, *Comput. & Geosci.*, **31**(4) (2005) 473-487. https://doi.org/10.1016/j.cageo.2004.10.013. (c91)
- R.S. Seright, M. Prodanovic and W.B. Lindquist. X-ray computed microtomography studies of disproportionate permeability reduction. SPE paper #89393, presented at the 14th SPE/DOE Symposium on Improved Oil Recovery, Tulsa, OK, Apr. 17-21, 2004. (c20) *ftp.ams.sunysb.edu/pub/papers/2003/susb03_19.doc*
- M. Prodanovic, W.B. Lindquist and R.S. Seright. 3D microtomographic study of fluid displacement in rock cores. Proceedings, Computational Methods in Water Resources XV Conference, Chapel Hill, NC, June 13-17, 2004. (c8) *ftp.ams.sunysb.edu/pub/papers/2004/susb04_01.pdf*
- C.M. Weaver, P.R. Hof, S.L. Wearne and W.B. Lindquist. Automated algorithms for multiscale morphometry of neuronal dendrites. *Neural Comput.*, **16** (2004) 1353-1383. (c100) *ftp.ams.sunysb.edu/pub/papers/2003/susb03_17.pdf*
- M. Maravall, Y.Y. Koh, W.B. Lindquist and K. Svoboda. Experience-dependent changes in basal dendritic branching of layer 2/3 pyramidal neurons during a critical period for developmental plasticity in rat barrel cortex. *Cerebral Cortex*, **15** (2004) 655-664. doi: 10.1093/cercor/bhh026. (c84) *ftp.ams.sunysb.edu/pub/papers/2004/susb04_02.pdf*
- A. Kulkarni, J. Gutleber, S. Sampath, A. Goland, W.B. Lindquist, H. Herman, A.J. Allen and B. Dowd. Studies of the microstructure and properties of dense ceramic coatings produced by high-velocity oxygen fuel combustion spraying. *J. Mater. Sci. Engin. A*, **369** (2004) 124-137. (c141) *ftp.ams.sunysb.edu/pub/papers/2004/susb04_04.pdf*
- I. Kim, W.B. Lindquist and W.B. Durham. Fracture flow simulation using a finite difference lattice Boltzmann method. *Phys. Rev. E.*, **67** (2003) 046708. (c49) *ftp.ams.sunysb.edu/pub/papers/2002/susb02_21.pdf*
- C. M. Weaver, J.D. Pinezich, W.B. Lindquist and M. Vazquez. An algorithm for neurite outgrowth reconstruction. *J. Neurosci. Meth.*, **124** (2003) 197-205. (c36) *ftp.ams.sunysb.edu/pub/papers/2001/susb01_10.pdf*
- K.W. Jones, H. Feng, W.B. Lindquist, P.M. Adler, J.-F. Thovert, B. Vekemans, L. Vincze, I. Szaloki, R. Van Grieken, F. Adams, C. Riekel. Study of the microgeometry of porous

materials using synchrotron computed microtomography. In *Applications of X-ray Computed Tomography in the Geosciences*, F. Mees, R. Swennen, M. Ven Geet, P. Jacobs, eds. Geological Society, London, Special Publications, **215** (2003) 39-49. (c17)

- R.S. Seright, J. Liang, W.B. Lindquist and J.H. Dunsmuir. Use of X-ray computed microtomography to understand why gels reduce permeability to water more than to oil. J. *Petroleum Sci. Eng.*, **39** (2003) 217-230. (c33) *ftp.ams.sunysb.edu/pub/papers/2002/susb02_03.pdf*
- W. Guo, W.B. Lindquist and W. Oh. A parallelized, structured-unstructured hybrid, tetrahedral grid construction. Stony Brook University report, SUNYSB-AMS-02-10, 2002. *ftp.ams.sunysb.edu/pub/papers/2002/susb02_10.pdf*
- W.B. Lindquist. Network flow model studies and 3D pore structure. *Contemp. Math.*, **295** (2002) 355-366. (c49) *ftp.ams.sunysb.edu/pub/papers/2001/susb01_14.pdf*
- W. Hwang and W.B. Lindquist. The 2-dimensional Riemann problem for a 2x2 hyperbolic conservation law I. isotropic media. SIAM J. Math. Anal. 34 (2002) 341-358. (c20) ftp.ams.sunysb.edu/pub/papers/2001/susb01_11.pdf
- W. Hwang and W.B. Lindquist. The 2-dimensional Riemann problem for a 2x2 hyperbolic conservation law II. anisotropic media. SIAM J. Math. Anal. 34 (2002) 359-384. (c19) ftp.ams.sunysb.edu/pub/papers/2001/susb01_12.pdf
- W.B. Lindquist. Quantitative analysis of three-dimensional X-ray tomographic images, in *Developments in X-ray Tomography III*, U. Bonse (ed.), Proceedings of SPIE. 4503 (2002) 103-115. SPIE, Bellingham, WA. (c61) *ftp.ams.sunysb.edu/pub/papers/2001/susb01_06.pdf*
- I.Y.Y. Koh, W.B. Lindquist, K. Zito, E.A. Nimchinsky and K. Svoboda. An Image Analysis Algorithm for Dendritic Spines. *Neural Comput.* 14 (2002) 1283-1310. (c196) *ftp.ams.sunysb.edu/pub/papers/2001/susb01_01.pdf*
- R.S. Seright, J.-T. Liang, W.B. Lindquist and J.H. Dunsmuir. Characterizing disproportionate permeability reduction using synchrotron X-ray computed microtomography. SPE Reserv. Eval. Eng., 5 (2002) 355-364. (c70) ftp.ams.sunysb.edu/pub/papers/2002/susb02_02.pdf
- R.S. Seright, J. Liang, W.B. Lindquist and J.H. Dunsmuir. Use of X-Ray Computed Microtomography to Understand Why Gels Reduce Permeability to Water More Than That to Oil. 7th International Symposium on Reservoir Wettability, Freycinet, Tasmania, Australia, March 12-15, 2002.
- R.M. Sok, M.A. Knackstedt, A.P. Sheppard, W.V. Pinczewski, W.B. Lindquist, A. Venkatarangan, L. Paterson. Direct and stochastic generation of network models from

tomographic images: Effect of topology on residual saturations. *Trans. Porous Media*, **46** (2002) 345-371. (c160)

- S.Y. Cho and W.B. Lindquist. Predictability in Stochastic Reservoirs. Stony Brook University report, SUNYSB-AMS-01-21, 2001. *ftp.ams.sunysb.edu/pub/papers/2001/susb01_21.pdf*
- R.S. Seright, J. Liang, W.B. Lindquist and J.H. Dunsmuir. Characterizing Disproportionate Permeability Reduction Using Synchrotron X-Ray Computed Microtomography. Paper 71508 - 2001 SPE Annual Technical Conference and Exhibition, New Orleans, Sept. 30 -Oct. 3.
- C.H. Arns, M.A. Knackstedt, W.V. Pinczewski and W.B. Lindquist. Accurate estimation of transport properties from microtomographic images. *Geophys. Res. Lett.*, **28** (2001) 3361-3364. (c286)
- I.Y.Y. Koh and W.B. Lindquist. Automated 3D dendritic spine detection and analysis from twophoton microscopy, in *Three-Dimensional and Multidimensional Microscopy: Image Acquisition and Processing VIII*, J.-A. Conchello, C.J. Cogswell and T. Wilson (eds.), Proceedings of SPIE, **4261** (2001) 48-59. SPIE, Bellingham, WA. (c6)
- S.-R. Song, K.W. Jones, W.B. Lindquist, B.A Dowd and D.L. Sahagian. Synchrotron X-ray computed microtomography (CMT) studies on vesiculated basaltic rocks. *Bull. Volcan.* 63 (2001) 252-263. (c88) *ftp.ams.sunysb.edu/pub/papers/2003/susb03_01.doc*
- H. Yang and W.B. Lindquist. Three-dimensional image analysis of fibrous materials. In *Applications of Digital Image Processing XXIII*, A.G. Tescher (ed.), Proceedings of SPIE, 4115, 275-282. SPIE, Bellingham, WA, 2000. (c48) *ftp.ams.sunysb.edu/pub/papers/2000/susb00_15.pdf*
- I.Y.Y. Koh and W.B. Lindquist. 3DMA Dendrite/Spine Detection Users' Manual. Stony Brook University report, SUNYSB-AMS-00-03, 2000. (c1) *ftp.ams.sunysb.edu/pub/papers/2000/susb00_03.pdf*
- W.B. Lindquist, A. Venkatarangan, J. Dunsmuir and T.-f. Wong. Pore and throat size distributions measured from synchrotron X-ray tomographic images of Fontainebleau sandstones. J. Geophys. Res., 105B, (2000) 21508-21528. (c676) ftp.ams.sunysb.edu/pub/papers/1999/susb99_13.pdf
- W.B. Lindquist. 3DMA General Users' Manual, Stony Brook University report, SUNYSB-AMS-99-20, 1999. (c52) ftp.ams.sunysb.edu/pub/papers/1999/susb99_20.pdf
- J.T. Fredrich, D.R. Noble, R.M. O'Connor and W.B. Lindquist. Development, implementation, and experimental validation of the lattice Boltzmann method for modeling three-

dimensional complex flows. Sandia National Laboratory report SAND99-0369. February, 1999. (c13)

- W. Oh and W.B. Lindquist. Image thresholding by indicator kriging. *IEEE Trans. Pattern Anal. Mach. Intell.*, **21**, (1999) 590-602. (c545) *ftp.ams.sunysb.edu/pub/papers/1998/susb98_02.ps.gz*
- W.B. Lindquist and A. Venkatarangan. Investigating 3D geometry of porous media from high resolution images. *Phys. Chem. Earth* (A), **24**, (1999) 593-599. (c432) *ftp.ams.sunysb.edu/pub/papers/1998/susb98_01.ps.gz*
- J.T. Fredrich and W.B. Lindquist. Statistical characterization of the three-dimensional microgeometry of porous media and correlation with macroscopic transport properties. *Int. J. Rock Mech. & Min. Sci.*, **34:3-4**, Paper No. 85 (1997). (c31)
- Y. Song, W. Chui, J. Glimm, W.B. Lindquist and F. Tangerman. Applications of front tracking to the simulation of resin transfer molding. *Comput. Math. Applic.*, **33**, (1997) 47-60. (c14) *ftp.ams.sunysb.edu/pub/papers/1996/susb96_16.ps.gz*
- K.-K. Chang and W.B. Lindquist. Mass conserving front tracking for miscible flow. SIAM J. Sci. Comp., 18, (1997) 1310-1327. (c4) ftp.ams.sunysb.edu/pub/papers/1994/susb94_12.ps.gz
- W.B. Lindquist, S.M. Lee, D. Coker, K. Jones and P. Spanne. Medial axis analysis of void structure in three-dimensional tomographic images of porous media. J. Geophys. Res., 101B, (1996) 8297-8310. (c666)
 ftp.ams.sunysb.edu/pub/papers/1995/susb95_01.ps.gz
- W.B. Lindquist and Y. Sharma. Confidence estimation in history matched models. Stony Brook University report, SUNYSB-AMS-95-10, 1995. *ftp.ams.sunysb.edu/pub/papers/1995/susb95_10.ps.gz*
- P. Spanne, J.F. Thovert, C.J. Jacquin, W.B. Lindquist, K.W. Jones and P.M. Adler. Synchrotron computed microtomography of porous media: topology and transports. *Phys. Rev. Lett.*, **73**, (1994) 2001-2004. (c624) *ftp.ams.sunysb.edu/pub/papers/1994/susb94_22.pdf*
- W.B. Lindquist, W. Oh and A. Venkatarangan. A stochastic kriging algorithm. Stony Brook University report, SUNYSB-AMS-94-17, 1994. (c4) *http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.8.6730*
- D.A. Coker and W.B. Lindquist. An edge-based algorithm to filter tomographic data sets. SUNY Institute of Technology report, SUNYIT-MS-1-1994. Dep. of Math. and Sci., State Univ. of N.Y. Inst. of Technol., Utica, 1994. (c3)

- D.A. Coker and W.B. Lindquist. Structural reliability analysis for one dimensional, two phase miscible flow. SIAM J. Appl. Math., 54, (1994) 935-953. (c2) *ftp.ams.sunysb.edu/pub/papers/1992/susb92_18.ps.gz*
- B. Bielefeld, J. Glimm, W.B. Lindquist and F. Tangerman. Incorporation of two dimensional front-tracking into PICS GCT 1.0. Stony Brook University report, SUNYSB-AMS-93-07, 1993. (c1) *ftp.ams.sunysb.edu/pub/papers/1993/susb93_07.ps.gz*
- J. Glimm, W.B. Lindquist, F. Pereira and Q. Zhang. A theory of macrodispersion for the scale up problem. *Trans. Porous Media*, **13**, (1993) 97-122. (c153) *ftp.ams.sunysb.edu/pub/papers/1992/susb92_19.ps.gz*
- J. Glimm and W.B. Lindquist. A theory of fluid mixing. Proceedings of the Fourth International Conference on Hyperbolic Problems, Taormina, Italy, April 1992. Lecture Notes on Numerical Fluid Dynamics, 43 (1993) pp. 291-297, A. Donato, F. Oliveri, eds., Vieweg, Weisbaden. (c3) *ftp.ams.sunysb.edu/pub/papers/1992/susb92_09.ps.gz*
- L. Fonseca, J. Glimm and W.B. Lindquist. An analysis of field data permeability. Stony Brook University report, SUNSYSB-AMS-92-16, 1992. (c3) *ftp.ams.sunysb.edu/pub/papers/1992/susb92_16.ps.gz*
- J. Glimm and W.B. Lindquist. Scaling laws for macrodispersion. Proceedings of the Ninth International Conference on Computational Methods in Water Resources, 2: Mathematical Modeling in Water Resources, pp. 35-49. Computational Mechanics Publications, Southampton, UK, 1992. (c23) *ftp.ams.sunysb.edu/pub/papers/1992/susb92_04.ps.gz*
- J. Glimm, W.B. Lindquist, F. Pereira and R. Peierls. The multi-fractal hypothesis and anomalous diffusion. *Revista Brasileira de Matematica Aplicada e Computacional*, **11**, (1992) 31-49. (c50) *ftp.ams.sunysb.edu/pub/papers/1992/susb92_01.ps.gz*
- K.W. Jones, P. Spanne, W.B. Lindquist, W. C. Conner and M. Ferrero. Determination of polymerization particle morphology using synchrotron computed microtomography. *Nucl. Instr. Meth. Phys. Res.*, B68 (1992) pp. 105-110. (c23)
- W.B. Lindquist. Scale-up in fractal rock. Proceedings of the 7th Wyoming Enhanced Oil Recovery Symposium, Casper, WY, May 1-2, 1991, pp. 139-152; R. E. Ewing and D. Copeland, eds.; Enhanced Oil Recovery Institute, Univ. of Wyoming, Laramie, 1992.
- F. Furtado, J. Glimm, W.B. Lindquist, F. Pereira and Q. Zhang. Time dependent anomalous diffusion for flow in multi-fractal porous media. Proceedings of the Workshop on Numerical Methods for the Simulation of Multi-phase and Complex Flow, Amsterdam.

May, 1990. Lecture Notes in Physics, **398** (1991) pp. 79-89, T. M. M. Verheggan, ed., Springer Verlag, New York. (c35) *ftp.ams.sunysb.edu/pub/papers/1991/susb91_06.ps.gz*

- F. Furtado, J. Glimm, W.B. Lindquist and F. Pereira. Characterization of mixing length growth for flow in heterogeneous porous media. SPE paper # 21233, presented at the 11th SPE Symposium on Reservoir Simulation, Anaheim, CA, Feb. 17-21, 1991. (c36)
- J. Glimm, W.B. Lindquist and Q. Zhang. Front tracking, oil reservoirs, engineering scale problems and mass conservation. *IMA Vol. Math. Appl.* **29**, (1991) pp. 123-139. (c13)
- F. Furtado, J. Glimm, W.B. Lindquist and F. Pereira. Current Progress in Hyperbolic Systems: Riemann Problems and Computations. Proceedings of the Emerging Technologies Conference, F. Kovarik, ed., Houston, TX, July 1990. (c32)
- T. Kinoshita and W.B. Lindquist. Eighth-order anomalous magnetic moment of the electron. V. Diagrams containing no vacuum polarization loop. *Phys. Rev. D*, **42**, (1990). (c99)
- T. Kinoshita and W.B. Lindquist. Eighth-order anomalous magnetic moment of the electron. IV. Vertex diagrams containing photon-photon scattering subdiagrams. *Phys. Rev. D*, **39**, (1989) pp. 2407-2414. (c28)
- F. Furtado, J. Glimm, J. Grove, X.L. Li, W.B. Lindquist, R. Menikoff, D. H. Sharp and Q. Zhang. Front tracking and the interaction of nonlinear hyperbolic waves. *Lecture Notes in Engineering*, 43, (1989) pp. 99-111. (c10)
- W.B. Lindquist and M. Maesumi. The two dimensional interaction of nonlinear hyperbolic waves: examples from two phase flow in porous media. Proceedings of the 1988 International Conference on Theory and Applications of Differential Equations, R. Aftabizadeh, ed., Ohio University Press, Athens, 1989.
- P. Daripa, J. Glimm, W.B. Lindquist, M. Maesumi and O. McBryan. On the simulation of heterogeneous petroleum reservoirs. Proceedings of the IMA Workshop on Oil Recovery, Dec. 1987, M. Wheeler, ed., Springer-Verlag, New York, 1988. (c32)
- P. Daripa, J. Glimm, W.B. Lindquist and O. McBryan. Polymer floods: a case study of nonlinear wave analysis and of instability in tertiary oil recovery. *SIAM J. Appl. Math.*, 48, (1988) pp. 353-373. (c67)
- J. Glimm, J. Grove, W.B. Lindquist, O. McBryan and G. Tryggvason. The bifurcation of tracked scalar waves. *SIAM J. Sci. Stat. Comp.*, **9**, (1988) pp. 61-79. (c155)
- W.B. Lindquist. The scalar Riemann problem in two spatial dimensions: piecewise smoothness of solutions. Proceedings of the Special Session on Nonstrictly Hyperbolic Conservation Laws, Anaheim, 1985. *AMS Contemp. Math. Series*, **60**, Jan. 1987.

- P. Daripa, J. Glimm, J. Grove, W.B. Lindquist and O. McBryan. Reservoir simulation by the method of front tracking. Proceedings of the IFE/SSI seminar on Reservoir Description and Simulation with Emphasis on EOR, Oslo, Sept. 1986, pp. 1-18. (c11)
- W.B. Lindquist. Construction of solutions for two dimensional Riemann problems. *Int. J. Comput. Appl. Math.*, **12A**, (1986) pp. 615-630. (c44)
- W.B. Lindquist. The scalar Riemann problem in two spatial dimensions: piecewise smoothness of solutions and its breakdown. *SIAM J. Math. Anal.*, **17**, (1986) pp. 1178-1197. (c98)
- J. Glimm, W.B. Lindquist, O. McBryan and G. Tryggvason. Sharp and diffuse fronts in oil reservoirs: front tracking and capillarity. Proceedings of the SEG /SIAM/SPE Conference on Mathematical and Computational Methods in Seismic Exploration and Reservoir Modeling. January, 1985, Houston. (c17)
- M. King, W.B. Lindquist and L. Reyna. Stability of two dimensional immiscible flow to viscous fingering. DOE Research and Development Report *DOE/ER/3077-244*, March 1985.
- T. Kinoshita and W.B. Lindquist. Calculation of the eighth order anomalous magnetic moment of the electron. *Precision Measurement and Fundamental Constants II*, B. N. Taylor and W. D. Phillips, eds., Natl. Bur. Stand. (U.S.), Spec. Publ. 617 (1984)
- J. Glimm, W.B. Lindquist, O. McBryan, B. Plohr and S. Yaniv. Front tracking for petroleum reservoir simulation. Proceedings of the Reservoir Simulation Symposium, San Francisco, CA, Nov., 1983. SPE manuscript number 12238. (c33)
- J. Glimm, W.B. Lindquist, O. McBryan and L Padmanabhan. A front tracking reservoir simulator 5-spot validation studies and the coning problem. In *The Mathematics of Reservoir Simulation, Frontiers in Applied Mathematics*, 1, R.W. Ewing (ed.), SIAM, Philadelphia, 1983. (c66)
- J. Glimm, E. Isaacson, W.B. Lindquist, O. McBryan and S. Yaniv. Statistical fluid dynamics II: The influence of geometry on surface instabilities. In *The Mathematics of Reservoir Simulation, Frontiers in Applied Mathematics*, 1, R.W. Ewing (ed.), SIAM, Philadelphia, 1983. (c19)
- T. Kinoshita and W.B. Lindquist, Eighth-order anomalous magnetic moment of the electron. III. Sixth-order vertex containing a second-order vacuum polarization subdiagram. *Phys. Rev. D*, **27**, (1983) pp. 886-898. (c46)
- T. Kinoshita and W.B. Lindquist. Eighth-order anomalous magnetic moment of the electron. II. Fourth-order vertex containing second- and fourth-order vacuum polarization subdiagrams. *Phys. Rev. D*, **27**, (1983) pp. 877-885. (c45)

- T. Kinoshita and W.B. Lindquist. Eighth-order anomalous magnetic moment of the electron. I. Second-order vertex containing second- fourth-, and sixth-order vacuum polarization subdiagrams. *Phys. Rev. D*, **27**, (1983) pp. 867-876. (c77)
- T. Kinoshita and W.B. Lindquist. Parametric formula for the sixth-order vacuum polarization contribution in quantum electrodynamics. *Phys. Rev. D*, **27**, (1983) pp. 853-866. (c41)
- T. Kinoshita and W.B. Lindquist. Eighth-order anomalous magnetic moment of the electron. *Phys. Rev. Lett.*, **47** (1981) pp. 1573-1576. (c263)
- T. Kinoshita and W.B. Lindquist. Eighth-order anomalous magnetic moment of the electron. V. Diagrams containing no vacuum polarization loop. Cornell preprint CLNS-81/510, 1981.
- T. Kinoshita and W.B. Lindquist, Eighth-order anomalous magnetic moment of the electron. IV. Vertex diagrams containing photon-photon scattering subdiagrams. Cornell preprint CLNS-81/509, 1981.

Professional Presentations

114 (88 in North America, 16 in western & eastern Europe, 4 in Asia/Australia, 6 in South America)

- Advanced Analytics for the Real Estate Market, Quantitative Finance Seminar, Department of Applied Mathematics & Statistics, Stony Brook University, April 16, 2021.
- A dynamical system for gas phase cycling in porous media, Department of Mathematics & Statistics, Texas Tech University, March 19, 2019.
- Bridging scales in reactive flows: pore to core, 2014 Joint Mathematics Meetings, Baltimore, MD, January 15-18, 2014.
- *Pore geometry: film menisci motion of throats*, SIAM Conference on Mathematical & Computational Issues in the Geosciences, University of Padua, Padua, Italy, June 17-20, 2013.
- A re-examination of throats, InterPore Meeting, Czech Technical University, Prague, Czech Republic, May 22-24, 2013.
- Analysis of winner-loser models of hierarchy formational in animal groups, Department of Mathematics, Ghent University, Belgium, June 18-21, 2012.
- Capturing heterogeneity and bridging scales in reactive flows, Gordon Research Conference on Flow in Permeable Media, Les Diablerets, Switzerland, June 24-29, 2012.

- *Up-scaling reaction rates from pore to core scale*, International Conference on Flow and Transport in Porous Media: In honor of the 60th Birthday of Professor Majid Hassanizadeh, Poros, Greece, April 14-20, 2012.
- *Data-based analysis of winner-loser models of hierarchy formation among animals,* Mathematical Biosciences Institute, University of Ohio, Columbus, OH, January 9, 2012.
- A semi-analytical model for the computation of inhibition through polygonal cross sections, InterPore Conference, University of Utrecht, Utrecht, Netherlands, September 3-8, 2011.
- Dependence of up-scaled reaction rate on flow rate in porous media, IAPM Workshop on Image Analysis in Porous Media, UT-Austin, Austin, TX, July 14-15, 2011.
- Analysis of winner-loser models of hierarchy formation in animals, Lee Segel Prize Lecture, 8th European Conference on Mathematical and Theoretical Biology, Krakow, Poland, June 26-July 3, 2011.
- *Effects of pore-structure change and multi scale heterogeneity on containment transport and reaction-rate upscaling*, US DOE Subsurface Biochemical Research Contractor-Grantee Workshop, Washington, DC, April 28, 2011.
- *Upscaling reaction rates from pore-to-core scale*, Workshop on Supercritical CO² and Material Interactions, Brookhaven National Laboratory, Upton, NY, March 21-23, 2011.
- *Tomographic analysis of reactive flow induced pore structure changes in column experiments*, XVII International Conference on Computational Methods in Water Resources, Barcelona, Spain, June 19-23, 2010.
- *Pore-to-core up-scaling of reaction rates*, Mini-symposium on Pore Scale Modeling, Department of Earth Sciences, University of Utrecht, Utrecht, Netherlands, March 27-30, 2010.
- *Upscaling Geochemical reaction rates*, InterPore Conference, Texas A&M University, College Station, TX, March 14-17, 2010.
- *Tomographic analysis of reactive fluid induced pore structure changes*, SIAM Conference on Mathematical & Computational Issues in the Geosciences, Leipzig, Germany, June 15-19, 2009.
- *Tomographic analysis of reactive flow induced pore structure changes in column experiments,* InterPore Conference, Kaiserslautern, Germany, March 11-14, 2009.
- *Pore-to-core scale up-scaling of reactive transport via network flow models*, Modeling Analysis of Simulation of Multiscale Nonlinear Systems Workshop, Oregon State University, Corvallis, OR, June 25-27, 2008.

- *The geometry of primary drainage*, Center for Environmental and Applied Fluid Mechanics, John Hopkins University, Baltimore, MD, March 7, 2008.
- Analysis of 3 dimensional medial axis, Research Center for Advanced Science and Technology, University of Tokyo, Tokyo, Japan, January 31, 2008.
- *Up-scaling geochemical reaction rates for carbon dioxide in deep saline aquifers*, DOE-OBRS Computational Geosciences Symposium, Gaithersburg, MD, May 3-4, 2007.
- Residual fluid blubs and contact angle measurements for X-ray images of fluid displacement, SIAM Conference on Mathematical & Computational Issues in the Geosciences, Santa Fe, NM, March 19-22, 2007.
- *Microstructural characterization of a model sequestration basin*, Princeton Workshop on Multiphase Flow Across Scales, Princeton University, Princeton, NJ, November 2-3, 2006.
- *The geometry of primary drainage*, Department of Civil and Environmental Engineering, Louisiana State University, Baton Rouge, LA, March 19-21, 2006.
- *Pore throat permeability from lattice Boltzmann calculation*, SIAM Conference on Mathematical & Computational Issues in the Geosciences, Avignon, France, June 7-10, 2005.
- *Topological analysis of bone erosion*, Biomedical Engineering Society Fall Meeting Philadelphia, PA, October 13-16, 2004.
- 3D microtomographic analysis of fluid displacement in Berea cores, DOE Symposium on Flow & Transport, Characterization & Modeling from Pore to Reservoir Scales, Gaithersburg, MD, September 24-25, 2004.
- *Microtomography analysis of fluid displacement in rock cores*, USDOE: Applications of Synchrotron Radiation to Petroleum Geochemistry, Brookhaven National Laboratory, Upton NY, August 5-6, 2004.
- 3D microtomographic study of fluid displacement in Berea cores, Microscopy & Microanalysis 2004, Savannah, GA, August 3-5, 2004.
- 3D fluid partitioning in rock cores, SIAM Joint Annual Meeting and Conference on Life Sciences, Portland, OR, July 11-17, 2004.
- 3D microtomographic study of fluid displacement in rock cores, Computational Methods in Water Resources Conference, Chapel Hill, NC, June 13-18, 2004.
- *Predictability in stochastic reservoirs*, SIAM Conference on Mathematical & Computational Issues in the Geosciences, Austin, TX, March 17-20, 2003.

- *Challenges facing mathematics departments*, Department of Mathematics, University of Colorado, Denver, CO, February 25, 2002.
- *Techniques for quantitative analysis of 3D X-ray tomographic images*, SPIE Conference on Developments in X-ray Tomography III, San Diego, CA, July 29-August 3, 2001.
- 3D pore structure and fluid distribution measurements and network flow models studies, AMS/IMS/SIAM Summer Research Conference on Fluid Flow and Transport in Porous Media: Mathematical and Numerical Treatment, Mount Holyoke College, South Hadley, MA, June 17-21, 2001.
- Automated 3D dendritic spine detection and analysis from 2-photon microscopy, SPIE Photonics West Conference, San Jose, CA, January 20-21, 2001.
- Automated morphology of dendritic spines, Department of Biomathematical Sciences, Mt. Sinai School of Medicine, New York, NY, October 19, 2000.
- *The industrial math program at Stony Brook University*, SIAM NW Regional Math Industry Workshop, University of Washington Seattle, WA, October 12-14, 2000.
- 3DMA, Department of Applied Mathematics, Australian National University, Canberra, Australia, June 11-July 18, 1999.
- Investigating 3 dimensional geometry of porous media from tomographic images, SPIE 44th Annual Meeting, Denver, CO, July 21-23, 1999.
- *Pore structure modeling of porous media*, SIAM Conference on Mathematical & Computational Issues in the Geosciences, San Antonio, TX, March 23-27, 1999.
- Medial axis analysis of stochastic geometries, Mathematics Department, Purdue University, West Lafayette, IN, December 10-12, 1998.
- *Research in applied mathematics*, InStar Talk, Three Village Central School District, Stony Brook, NY, September 28, 1998.
- 3D pore scale geometry of sandstones, basalts & fractures, US DOE Geosciences Program 1998 Research Symposium on Micromechanics & Flow, St. Johns College, Santa Fe, NM, August 13-14, 1998.
- *Investigating 3D geometry of porous media from high resolution images*, Department of Applied Mathematics and Statistics, Stony Brook University, Stony Brook, NY, May 14, 1998.
- Investigating 3 dimensional geometry of porous media from high resolution images, European Geophysical Society Annual Meeting, Nice, France, April 21-25, 1998.

- *Investigating the geometry of bi-phase media*, Department of Mathematics, Indiana University -Purdue University Indianapolis, Indianapolis, IN, January 30-31, 1998.
- *Mechanics of a research project*, Keynote Speaker, Student Research Support Program, Center for Science, Mathematics and Technology Education, Stony Brook University, Stony Brook, NY, October 21, 1997.
- *Confidence estimation in history matched models*, Theory Division, Los Alamos National Laboratory, Los Alamos, NM, August 11-14, 1997.
- Statistical characterization of the 3 dimensional microgeometry of porous media & correlation with macroscopic transport properties, 36th US Rock Mechanics Meeting, Columbia, University, NY, June 29-July 2, 1997.
- Synchrotron X-ray computed microtomography studies of vesiculated basalts, AGU Spring Meeting, Baltimore, MD, May 27-30, 1997.
- 3DMA: Investigating three dimensional pore geometry from high resolution images, NSLS Annual Users Meeting, Brookhaven National Laboratory, Upton, NY, May 19-21, 1997.
- 3DMA: Investigating 3 dimensional pore geometry from high resolution images, Institute for Scientific Computation, Texas A&M University, College Station, TX, April 16, 1997.
- 3DMA: Investigating 3 dimensional pore geometry from high resolution images, Texas Institute of Computational Applied Mathematics, University of Texas-Austin, Austin, TX, April 14, 1997.
- 3DMA: Investigating 3 dimensional pore geometry from high resolution images, Workshop on Porous Media Processes: Linking the Pore and Continuous Scales through Theory, Direct Modeling & Direct Experimentation, Los Alamos National Laboratory, Los Alamos, NM, April 2-4, 1997.
- Medial axis analysis of rock void space geometry, Sixth Annual Industrial Affiliates Meeting, Center for Subsurface Modeling, University of Texas - Austin, Austin, TX, November 14-15, 1996.
- *Modeling organic plumes at BNL operable unit 1*, Department of Geosciences, Stony Brook University, Stony Brook, NY, May 8, 1996.
- Mass conserving front tracking for miscible, incompressible 2 phase flow, AMS Central Section Meeting, University of Iowa, Iowa City, March 21-24, 1996.
- Medial axis analysis of porous media, DOE GeoSciences Research Symposium: Earth Materials: Theory, Simulation & Experiment, Argonne National Lab, Argonne, IL, August 20-23, 1995.

- *Medial axis analysis of 3D void structure in porous media*, International Conference on Mathematical Modeling of Flow through Porous Media, St. Etienne, France, May 22-26, 1995.
- A model for fluid dispersion in porous media, Mathematics Department, SUNY Buffalo, Buffalo, NY, December 9, 1994.
- *A model for fluid dispersion in porous media*, Applied Mathematics Seminar, Courant Institute for Mathematical Sciences, New York University, New York, NY, November 11, 1994.
- A model for fluid dispersion in porous media, Department of Mathematics, Iowa State University, Ames, IA, November 4, 1994.
- *Introduction to research*, Keynote Speaker, Student Research Support Program, Center for Science, Mathematics and Technology Education, Stony Brook University, Stony Brook, NY, October 18, 1994.
- *Geometric/stochastic analysis of pore space*, Department of Earth & Space Sciences, Stony Brook University, Stony Brook, NY, October 11, 1994.
- A model for fluid dispersion in porous media, SIAM Annual Meeting, San Diego, CA, July 23-30, 1994.
- Computations & theory for discontinuous & stochastic solution of partial differential equations, DOE IOSC Applied Mathematics Workshop, Sandia National Laboratory, Albuquerque, NM, February 26-March 1, 1994.
- *High performance computing medium characterization & fluid flow*, SIAM Conference on Mathematical & Computational Issues in the Geosciences, San Antonio, TX, February 7-11, 1994.
- A model for fluid dispersion in porous media, Department of Mathematics, New Jersey Institute of Technology, Newark, NJ, October 22, 1993.
- *The 2 dimensional Riemann problem for a 2x2 hyperbolic model of polymer flow*, III Workshop on Partial Differential Equations, Institute de Matematica Pura e Aplicada, Rio De Janeiro, Brazil, July 19-23, 1993.
- *Conceptual design for the BNL-SBU Chicago RTCT system*, Annual NSLS Users Meeting, Brookhaven National Laboratory, Upton, NY, May 19, 1993.
- *Front tracking the laminar to slug flow transition*, SIAM Math Conference on Mathematical & Computational Issues in the Geosciences, Houston, TX, April 18-21, 1993.

- *Discontinuity resolution in ground water flow*, Regional Workshop on Ground Water Interests, Department of Applied Mathematics & Statistics, Stony Brook University, Stony Brook, NY, February 26, 1993.
- *Computational fluid dynamics*, AMS Industrial Advisory Board Meeting, Stony Brook University, Stony Brook, NY, October 26, 1992.
- *A multi-fractal permeability model*, Gordon Research Conference on Modeling of Fluids in Permeable Media, Plymouth State College, Plymouth, NH, August 10-14, 1992.
- Scaling laws for macro dispersion, 9th International Conference on Computational Methods in Water Resources, Organized Special Session on Scaling in Porous Media, Denver, CO, June 8-12, 1992.
- Scaling laws for dispersion rates, Partnership in Computational Science Meeting, Brookhaven National Laboratory, Upton, NY, May 5-6, 1992.
- Front tracking & length scales, Partnership in Computational Science Groundwater Grand Challenge, Rice University, Houston, TX, January 15-16, 1992.
- Scaling behavior in porous media flow equations, IMPA Workshop in Partial Differential Equations, Rio De Janeiro, Brazil, July 16-19, 1991.
- A random field model & fluid mixing in heterogeneous porous media, ICIAM 91, Washington, DC, July 8-10, 1991.
- Mixing length growth in fractal heterogeneous porous media, Wyoming Enhanced Oil Recovery Symposium, Casper, Wyoming, May 1-2, 1991.
- *Statistical reservoir simulations: theory and front tracking simulations*, 11th SPE symposium on Reservoir Simulation, Anaheim, CA, February 17-20, 1991.
- *Scale up in fractal rock*, DOE BES Workshop, Brookhaven National Laboratory, Upton, NY, December 12, 1990.
- *Theory & computation of unstable fronts*, American Association for the Advancement of Science Meeting, New Orleans, LA, February 17-27, 1990.
- *Front tracking, oil reservoirs & engineering scale problems*, SIAM Conference on Mathematical & Computational Issues in Geophysical Fluids & Solid Mechanics, Houston, TX, September 25-28, 1989.
- *Mixed finite elements*, Department of Applied Math & Statistics, Stony Brook University, Stony Brook, NY, September, 1989.

- *Front tracking, rock heterogeneity and scale up*, 1st Workshop on Modeling Flow through Porous Media with Application to Oil Reservoir Simulation, Los Alamos National Laboratory, Los Alamos, NM, August 16-18, 1989.
- Front tracking oil reservoirs & engineering scale problems, SIAM Annual Meeting, San Diego, CA, July 16-21, 1989.
- Scalar Riemann problems in two spatial dimensions, Workshop on Hyperbolic Problems; Theory, Computation & Applications, Institute de Matematica Pura e Aplicada, Rio De Janeiro, Brazil, July 10-16, 1989.
- *Front tracking: layers and barriers*, DOE NIPER 2nd International Reservoir Characterization Technical Conference, Dallas, TX, June 25-28, 1989.
- Scalar Riemann problems in two spatial dimensions, IMA Mini Symposium on Computational Issues for Nonlinear Hyperbolic Waves, Minneapolis, MN, April 17-21, 1989.
- *Discontinuity interactions in multiphase flow in porous media*, Department of Applied Mathematics & Statistics, Stony Brook University, Stony Brook, NY, November, 1988.
- The 2D interaction of nonlinear hyperbolic waves: examples from multiphase flow in porous *media*, International Conference on Theory & Applications of Differential Equations, Ohio University, Athens, OH, March 21-25, 1988.
- *Interacting discontinuities in multi-phase flow in porous media*, 1988 International Conference on Theory & Application of Differential Equations, Columbus, OH, March 21-25, 1988.
- *Oil reservoir simulation*, Shell Oil site visit, Courant Institute of Mathematics Sciences, New York University, New York, NY, October 19, 1987.
- *Oil reservoir simulations*, DOE Review of Computational & Applied Mathematics, Courant Institute of Mathematics Sciences, New York University, New York, NY, September 10, 1987.
- *Front tracking as a tool for reservoir studies*, Mini Symposium on Mathematical Models & Methods in Reservoir Simulation, Geilo, Norway, August 26-28, 1987.
- *Tracking interacting discontinuities*, MSRI Workshop on Nonlinear Hyperbolic Waves, UC Berkeley, Berkeley, CA, May 25-28, 1987.
- Cavitation of bubble collapse, Naval Weapons Laboratory, Silver Springs, MD, April, 1987.
- *Tracking interacting discontinuities*, Department of Mathematics, University of Connecticut, Storrs, CT, February 20-21, 1987.

3 Lectures on Riemann Problem Solutions in 2 Space Dimensions:

- 1. Scalar hyperbolic equations;
- 2. Isaacson Keyfitz Kranzer polymer model system;
- 3. Euler equations for gas dynamics;
- Department of Mathematics, Pontificia Universidade Catolica, Rio De Janeiro, Brazil, January 4-31, 1987.
- *Resolving shock interactions*, Department of Mathematics and Computer Science, Adelphi University, Garden City, NY, October 29, 1986.
- *Discontinuity resolution via tracking schemes*, Gordon Research Conference on Flow in Permeable Media, Andover, NH, July 27-August 1, 1986.
- *Tracking interacting discontinuities*, SIAM 1986 National Meeting, Boston, MA, July 21-25, 1986.
- Resolution of discontinuities & discontinuity interaction in reservoir flows, NSF-CBMS Regional Conference in Mathematical Sciences, Morgantown, WV, June 2-6, 1986.
- Shock tracking applications to reservoir flow computations, Courant Schlumberger Day, Courant Institute of Mathematical Science, New York University, New York, NY, May 13, 1986.
- *Construction of solutions for 2D Reimann problems*, 11th IMACS World Congress, Oslo, Norway, August 5-9, 1985.
- Sharp and diffuse fronts in oil reservoirs: front tracking & capillarity, SIAM Spring National Meeting, Pittsburgh, PA, June 24-26, 1985.
- Discretization and post processing in the neighborhood of discontinuities, SEG-SIAM-SPE Conference, Houston, TX, January 21-24, 1985.
- The scalar Reimann problem in two spatial dimensions: piecewise smoothness of solutions, AMS MAA Joint Meeting, Anaheim, CA, January 7-13, 1985.