

# Louis Durlofsky

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## Otto N. Miller Professor in Earth Sciences



### Contact Information

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#### Internet Links:

- [Smart Fields Consortium](#)
- [SUPRI-B: Reservoir Simulation](#)

Bio	Research & Scholarship	Teaching	Publications
<ul style="list-style-type: none"> <li>▪ Professor, <a href="#">Energy Resources Engineering</a></li> <li>▪ Affiliate, <a href="#">Precourt Institute for Energy</a></li> <li>▪ Affiliate, <a href="#">Stanford Woods Institute for the Environment</a></li> </ul>			
<h3>Administrative Appointments</h3>			
<ul style="list-style-type: none"> <li>▪ Post-Doctoral Fellow, California Institute of Technology, Pasadena, California (1986 - 1987)</li> <li>▪ Various positions, Chevron Petroleum Technology Company, La Habra, California (1987 - 1999)</li> <li>▪ Associate Professor (Research) of Petroleum Engineering, Stanford University (1998 - 2001)</li> <li>▪ Senior Staff Research Scientist, Reservoir Simulation Research Team, Chevron Energy Technology Company, San Ramon, California (1999 - 2004)</li> <li>▪ Associate Professor of Petroleum Engineering, Stanford University (2001 - 2003)</li> <li>▪ Professor of Petroleum Engineering / Professor of Energy Resources Engineering, Stanford University (2003 - Present)</li> <li>▪ Chair, Department of Energy Resources Engineering, Stanford University (2006 - 2012)</li> </ul>			
<h3>Honors and Awards</h3>			
<ul style="list-style-type: none"> <li>▪ Best Paper Award (for year 2014), Mathematical Geosciences (2016)</li> <li>▪ IBM Faculty Award, IBM (2013)</li> <li>▪ Best Paper Award (for year 2008), Mathematical Geosciences (2009)</li> <li>▪ Otto N. Miller Chair in Earth Sciences, Stanford University (2009)</li> <li>▪ SPE Distinguished Member, Society of Petroleum Engineers (2007)</li> <li>▪ SPE Lester C. Uren Award (for distinguished achievement before age 45), Society of Petroleum Engineers (2007)</li> <li>▪ SPE Outstanding Technical Editor Award, SPE Journal (2004)</li> <li>▪ SPE Reservoir Engineering Award, Society of Petroleum Engineers (2002)</li> <li>▪ School of Earth Sciences Excellence in Teaching Award, Stanford University (2001)</li> <li>▪ Chevron Corporation Chairman's Award, Chevron (1999)</li> <li>▪ Chevron Petroleum Technology Company R&amp;D Award, Chevron Petroleum Technology Company (1995)</li> </ul>			
<h3>University Service and Professional Activities</h3>			

- Co-organizer, IPAM Long Program on Computational Issues in Oil Field Applications, UCLA IPAM (2017 - 2017)
- Guest co-editor, of Special Issue of Mathematical Geosciences on Smart Oil Fields and Mining Complexes, Mathematical Geosciences (2017 - 2017)
- Invited speaker, ExxonMobil Upstream Research Company, Houston, TX (2017 - 2017)
- Invited speaker, IPAM Workshop on Multiphysics, Multiscale, and Coupled Problems in Subsurface Physics, UCLA IPAM. Los Angeles, CA (2017 - 2017)
- Associate Chair for Diversity and Inclusion, Stanford School of Earth, Energy & Environmental Sciences (2016 - Present)
- Co-taught Reservoir Simulation Short Course, July, Stanford University (2016 - 2016)
- Invited speaker, InterPore Conference, Cincinnati, OH, InterPore (2016 - 2016)
- Invited speaker, Workshop on Numerical Optimization for Application in Reservoir Management, Utrecht, The Netherlands, TNO (2016 - 2016)
- External review committee member, Geo-cluster, TU Delft, The Netherlands (2015 - 2016)
- Co-taught Reservoir Simulation Short Course, July, Stanford University (2015 - 2015)
- Invited speaker, Chevron Energy Technology Company, Houston (2015 - 2015)
- Invited speaker, West Coast ROM Workshop, Sandia National Laboratories, Livermore, CA (2015 - 2015)
- Invited speaker, Zandmer Distinguished Lecture Series (2 talks), University of Calgary, Alberta, Canada (2015 - 2015)
- Editorial Board, Mathematical Geosciences (2014 - Present)
- Co-taught Reservoir Simulation Short Course, August, Stanford University (2014 - 2014)
- Invited speaker, AGU Annual Meeting, San Francisco, AGU (2014 - 2014)
- Invited speaker, IFORS (International Federation of Operational Research Societies), Barcelona, Spain, IFORS (2014 - 2014)
- Invited speaker, InterPore Conference, Milwaukee, WI, InterPore (2014 - 2014)
- Invited speaker, Schlumberger Applied Mathematics Workshop (Webinar), Schlumberger, UK (2014 - 2014)
- Co-taught Reservoir Simulation Short Course, August, Stanford University (2013 - 2013)
- Invited speaker, Petroleum & Geosystems Engineering Department Seminar, March, University of Texas, Austin (2013 - 2013)
- Invited speaker, Petroleum Engineering Seminar Series, April, University of Houston (2013 - 2013)
- Invited speaker, Petroleum Engineering, October, Norwegian University of Science and Technology, Trondheim, Norway (2013 - 2013)
- Invited speaker, Schlumberger Applied Math Global Webinar, March, Schlumberger (2013 - 2013)
- Keynote speaker, International Conference on Nonlinearities and Upscaling in Porous Media, October, NUPUS, Os, Norway (2013 - 2013)
- Member of School of Earth Sciences Core Council, Stanford University (2012 - Present)
- Co-taught Reservoir Simulation Short Course, July, Stanford University (2012 - 2012)
- Invited speaker, InterPore Conference, Purdue University, West Lafayette, IN, May, InterPore (2012 - 2012)
- Editorial Board, Computational Geosciences (2011 - Present)
- Associate Editor, SIAM Multiscale Modeling and Simulation, Society for Industrial and Applied Mathematics (2011 - 2014)
- Co-taught Reservoir Simulation Short Course, July, Stanford University (2011 - 2011)
- Invited speaker, CENPES, Petrobras, Rio de Janeiro, Brazil, June, Petrobras (2011 - 2011)
- Invited speaker, NSF-SIAM Workshop on Collaboration in Mathematical Geosciences, Washington DC, September, NSF-SIAM (2011 - 2011)
- Invited speaker, Petroleum and Geological Engineering Department Seminar, October, University of Oklahoma (2011 - 2011)
- Invited speaker, Thermal and Fluid Sciences Affiliates Meeting - Optimization Day, February, Stanford University (2011 - 2011)
- Invited speaker, Workshop on Large-scale Inverse Problems and Quantification of Uncertainty, Institute of Mathematics and its Applications (IMA), University of Minnesota (2011 - 2011)
- Minisymposium co-organizer, SIAM Conference on Mathematical and Computational Issues in the Geosciences, Long Beach, CA, March, Society for Industrial and Applied Mathematics (2011 - 2011)
- Plenary speaker, Workshop on Geomechanics and Numerical Methods for Reservoir Simulation, LNCC, Petropolis, Brazil, June, LNCC (2011 - 2011)
- Co-Director, Stanford Smart Fields Consortium, Stanford University (2010 - Present)
- Co-taught Reservoir Simulation Short Course, July, Stanford University (2010 - 2010)
- Invited speaker, 2nd International Conference on Engineering Optimization, Lisbon, Portugal, September, EngOpt (2010 - 2010)
- Invited speaker, InterPore Conference and Annual Meeting, Texas A&M University, College Station, TX, March, InterPore (2010 - 2010)
- Invited speaker, London Mathematical Society Durham Research Symposium – Numerical Analysis of Multiscale Problems, Durham University, Durham, UK, July, London Mathematical Society (2010 - 2010)
- Invited speaker, Petroleum Engineering Department Seminar, College Station, October, Texas A&M University, (2010 - 2010)
- Co-organizer and Participant, Fueling the Future Panel Discussion, Stanford, January, Stanford University (2009 - 2009)
- Co-taught Reservoir Simulation Short Course, Stanford, July, Stanford University (2009 - 2009)
- Invited speaker, Reservoir Engineering Research Institute, Palo Alto, CA, May, Reservoir Engineering Research Institute (2009 - 2009)
- Invited speaker, SPE Golden Gate Section, San Ramon, CA, May, Society of Petroleum Engineers (2009 - 2009)
- Co-taught Reservoir Simulation Short Course, Stanford, July, Stanford University (2008 - 2008)
- Invited speaker, Distinguished Speaker Series in Computation for Design and Optimization, MIT, December, MIT (2008 - 2008)
- Invited speaker, SIAM Conference on Optimization, Boston, May, Society for Industrial and Applied Mathematics (2008 - 2008)
- Invited speaker, SPE Applied Technology Workshop on Closed-loop Reservoir Management, Bruges, Belgium, June, Society of Petroleum Engineers (2008 - 2008)
- Invited speaker, SPE Colloquium on Petroleum Engineering Education, Houston, January, Society of Petroleum Engineers (2008 - 2008)
- Invited speaker, Schlumberger-Doll Research, Cambridge, MA, December, Schlumberger-Doll (2008 - 2008)
- Minisymposium co-organizer, SIAM Conference on Optimization, Boston, May, Society for Industrial and Applied Mathematics (2008 - 2008)

- Co-taught Reservoir Simulation Short Course, Stanford, August, Stanford University (2007 - 2007)
- Invited speaker, Applied Computational Intelligence Laboratory, Pontifícia Universidade Católica do Rio de Janeiro, Brazil, August, Applied Computational Intelligence Laboratory (2007 - 2007)
- Invited speaker, CENPES, Petrobras, Rio de Janeiro, Brazil, August, Petrobras (2007 - 2007)
- Invited speaker, Foundation CMG Technical Symposium, Calgary, Canada, September, Foundation CMG (2007 - 2007)
- Invited speaker, Mathematics and Engineering Seminar, Texas Tech University, Lubbock, TX, February, Texas Tech University (2007 - 2007)
- Invited speaker, Occidental of Elk Hills, Bakersfield, CA, September, Occidental (2007 - 2007)
- Invited speaker, Petroleum & Geosystems Engineering Department Seminar, September, University of Texas, Austin, (2007 - 2007)
- Invited speaker, Petroleum Engineering Department Seminar, Baton Rouge, October, Louisiana State University (2007 - 2007)
- Invited speaker, Petroleum Engineering Department Seminar, University of Tulsa, OK, February, University of Tulsa (2007 - 2007)
- Invited speaker, Smart Fields Roundtable, Petrobras, Rio de Janeiro, Brazil, August, Petrobras (2007 - 2007)
- Invited speaker, US Baseline Workshop on Simulation Based Engineering and Science, Arlington, VA, November, World Technology Evaluation Center (2007 - 2007)
- Invited speaker, Uncertainty Modeling and Quantification in Computational Mechanics, Ann. Mtg, San Francisco, July, US National Congress on Computational Mechanics (2007 - 2007)
- Upscaling Short Course, Occidental of Elk Hills, Bakersfield, CA, September, Occidental (2007 - 2007)
- Co-taught Reservoir Simulation Short Course, August, Stanford University (2006 - 2006)
- Guest co-editor, Special Issue on Closed-loop Reservoir Management, Computational Geosciences (2006 - 2006)
- Invited speaker, 7th World Congress, Los Angeles, July, Computational Mechanics, Mathematical and Computational Aspects of Multi-scale and Multi-physics (2006 - 2006)
- Invited speaker, CNODC, Beijing, China, November, China National Oil & Gas Exploration Development (2006 - 2006)
- Invited speaker, China University of Petroleum, Beijing, China, November, China University of Petroleum (2006 - 2006)
- Invited speaker, ConocoPhillips, Houston, June, ConocoPhillips (2006 - 2006)
- Invited speaker, Data Assimilation in Computational Mechanics, Ann. Mtg. Los Angeles, July, World Congress on Computational Mechanics (2006 - 2006)
- Invited speaker, Geophysics Department Seminar, June, Stanford University (2006 - 2006)
- Invited speaker, Research Institute of Petroleum Exploration and Development (RIPED), PetroChina, Beijing, China, November, RIPED (2006 - 2006)
- Keynote speaker, Marathon Oil Company Upscaling Symposium, Houston, July, Marathon Oil Company (2006 - 2006)
- Keynote speaker, Quantitative Methods for Reservoir Characterization, Institut Francais du Petrole, Paris, France, April, Institut Francais du Petrole (2006 - 2006)
- Chair of Technical Committee, SPE Advanced Technology Workshop on Modeling and Optimization of Smart Wells, Huntington Beach, CA, April, Society of Petroleum Engineers (2005 - 2005)
- Co-taught Reservoir Simulation Short Course, August, Stanford University (2005 - 2005)
- Interim Department Chair, Energy Resources Engineering, Stanford University (2005 - 2005)
- Invited speaker, Computer Modeling Group, Calgary, Canada, March, Computer Modeling Group (2005 - 2005)
- Invited speaker, Eni E&P, Milan, Italy, June, Eni E&P (2005 - 2005)
- Invited speaker, Workshop on Integrative Multiscale Modeling and Simulation in Materials Science, Fluids and Environmental Science, Universite de Montreal, Canada, May, Universite de Montreal, (2005 - 2005)
- Keynote speaker, 8th International Forum on Reservoir Simulation, Stresa, Italy, June, International Forum on Reservoir Simulation (2005 - 2005)
- Member, Graduate Admissions Committee, Petroleum Engineering, Stanford University (2005 - 2005)
- School of Earth Sciences Academic Programs Committee (EEES), Stanford University (2004 - 2006)
- Chair, Graduate Admissions Committee, Petroleum Engineering, Stanford University (2004 - 2004)
- Co-organizer, Delft-Stanford Workshop on Closed-Loop Reservoir Management, Delft, Netherlands, June, Delft and Stanford Universities (2004 - 2004)
- Co-taught Reservoir Simulation Short Course, Stanford, August, Stanford University (2004 - 2004)
- Invited speaker EAGE Workshop on Scale Changes in Shared Earth Models, Paris, France, June, European Association of Scientists and Engineers (2004 - 2004)
- Invited speaker, AGU Annual Meeting, San Francisco, December, American Geophysical Union (2004 - 2004)
- Invited speaker, BG Group, Reading, UK, June, BG Group (2004 - 2004)
- Invited speaker, Department of Mathematics, University of Bergen, Norway, October, University of Bergen (2004 - 2004)
- Invited speaker, Department of Petroleum and Geosystems Engineering, University of Texas, September, University of Texas (2004 - 2004)
- Invited speaker, Gaz de France, Paris, France, June, Gaz de France (2004 - 2004)
- Invited speaker, Institut Francais du Petrole, Paris, France, June, Institut Francais du Petrole (IFP) (2004 - 2004)
- Invited speaker, Institute for Scientific Computation, Texas A&M University, August, Institute for Scientific Computation (2004 - 2004)
- Invited speaker, SPE Advanced Technology Workshop on Improved Reservoir Physics, San Diego, CA, April, Society of Petroleum Engineers (2004 - 2004)
- Invited speaker, Workshop on Multiscale Modeling for Fluid Flow and Material Science, University of Oslo, Norway, October, University of Oslo (2004 - 2004)
- School of Earth Sciences Core Disciplines Committee, Stanford University (2003 - 2004)
- Co-organizer, Heriot-Watt - Stanford Reservoir Description and Modeling Forum, Peebles, UK, September, Heriot-Watt - Stanford Modeling Forum, (2003 - 2003)
- Co-taught Short Course on Reservoir Simulation, August, Stanford University (2003 - 2003)
- Invited Speaker and Session Chair, SPE Forum on Reservoir Simulation, Park City, UT, July, Society of Petroleum Engineers (2003 - 2003)
- Invited Speaker, Ecole Nationale Supérieure de Géologie, Nancy, France, October, Ecole Nationale Supérieure de Géologie (2003 - 2003)
- Invited Speaker, Geophysics Department Seminar, May, Stanford University (2003 - 2003)

- Invited Speaker, SIAM Conference on Mathematical and Computational Issues in the Geosciences, Austin, TX, March, Society for Industrial and Applied Mathematics (2003 - 2003)
- Invited Speaker, Total, Pau, France, October, Total (2003 - 2003)
- Member of Technical Committee, SPE Reservoir Simulation Symposium, February, Society of Petroleum Engineers (2003 - 2003)
- Mini-symposium co-organizer, SIAM Geosciences Conference, Austin, TX, March, Society for Industrial and Applied Mathematics (2003 - 2003)
- Permanent Member of the Scientific Committee, European Conference on the Mathematics of Oil Recovery (2002 - Present)
- Co-organizer and Invited Speaker, Institute of Mathematics and its Applications Workshop on Quantifying Uncertainty and Multiscale Phenomena in Subsurface Processes, Minneapolis, January, Institute of Mathematics (2002 - 2002)
- Guest Editor, Special Issue on Upscaling, Computational Geosciences (2002 - 2002)
- Invited Speaker, Dept. of Mathematics, University of Bergen (Norway), University of Bergen (2002 - 2002)
- Invited Speaker, Institute of Mathematics and its Analysis Workshop on Numerical Methods in the Geosciences, Minneapolis, MN, Institute of Mathematics (2002 - 2002)
- Keynote Speaker, Reservoir Simulation Forum, BHP-Billiton, Houston, TX, Reservoir Simulation Forum (2002 - 2002)
- Chairman of Technical Committee, 2001 SPE Reservoir Simulation Symposium, Society of Petroleum Engineers (2001 - 2001)
- Session Chair, Stanford/Heriot-Watt Reservoir Modeling Forum, Carmel, CA, Stanford/Heriot-Watt Reservoir Modeling Forum (2001 - 2001)
- Short course on Reservoir Simulation, Petroleum Engineering Department, Stanford University (2001 - 2001)
- Co-Director, Stanford Reservoir Simulation Affiliates Program (SUPRI-B), Stanford University (2000 - Present)
- Invited Speaker, Environmental Fluid Mechanics and Hydrology Seminar, Civil and Environmental Engineering, Stanford University (2000 - 2000)
- Invited Speaker, First SIAM Conference on Computational Science and Engineering, Washington, D.C., Society of Industrial and Applied Mathematics (2000 - 2000)
- Invited Speaker, Gordon Research Conference on Modeling Flow in Permeable Media, Andover, NH, Gordon Research Conference (2000 - 2000)
- Invited Speaker, Waseda University, Tokyo, Japan, Waseda University (2000 - 2000)
- Panelist, Fourth International Conference and Exhibition on Horizontal Well Technology, Calgary, Alberta, Canada, International Conference and Exhibition on Horizontal Well Technology (2000 - 2000)
- Short course on Reservoir Simulation, Petroleum Engineering Department, Stanford University (2000 - 2000)
- Member of Technical Committee, 2000 SPE Asia Pacific Conference (Japan), Society of Petroleum Engineers (1999 - 2000)
- Co-organizer and presenter, Workshop on Challenges of Multiphase Flow in Horizontal Wells, Porsgrunn, Norway, Workshop on Challenges of Multiphase Flow in Horizontal Wells (1999 - 1999)
- Invited Speaker, Chemical Engineering Fluid Mechanics Group, Stanford University (1999 - 1999)
- Invited Speaker, Workshop on Multiscale Modeling and Simulation of Flow and Transport in Porous Media, Los Alamos National Laboratory, Los Alamos, NM, Workshop on Multiscale Modeling and Simulation... (1999 - 1999)
- Invited speaker, SPE Forum on Reservoir Engineering Aspects of Multilateral and Advanced Wells, Breckenridge, CO, Society of Petroleum Engineers (1999 - 1999)
- Mini-symposium co-organizer and session chair, Fifth SIAM Geosciences Conference San Antonio, TX, Society of Industrial and Applied Mathematics (1999 - 1999)
- Session chair and presenter, Heriot-Watt - Stanford Forum, Edinburgh, UK, Heriot-Watt - Stanford Forum (1999 - 1999)
- Short course on Reservoir Simulation, Chevron, San Ramon, CA, Chevron (1999 - 1999)
- Short course on Reservoir Simulation, Petroleum Engineering Department, Stanford University (1999 - 1999)
- Co-Director, Stanford Advanced Wells Affiliates Program (SUPRI-HW), Stanford University (1998 - 2010)
- Member, Graduate Admissions Committee, Petroleum Engineering, Stanford University (1998 - 2001)
- Member of Technical Committee, 1999 SPE Reservoir Simulation Symposium, Society of Petroleum Engineers (1998 - 1999)
- Invited speaker, Petroleum Engineering, University of Texas at Austin, University of Texas, Austin (1998 - 1998)
- Member, SPE Forum Steering Committee, Society of Petroleum Engineers (1998 - 1998)
- Short course on Reservoir Simulation, Petroleum Engineering Dept, Stanford University (1998 - 1998)
- Short course on Upscaling, Japan National Oil Corporation, Tokyo, Japan, Japan National Oil Corporation (1998 - 1998)
- Invited plenary speaker and session chair, Fourth SIAM Geosciences Conference, Albuquerque, New Mexico, Society for Industrial and Applied Mathematics (1997 - 1997)
- Invited speaker, Petroleum Engineering, Stanford University (1997 - 1997)
- Member, Society for Industrial and Applied Mathematics (SIAM) (1996 - Present)
- Member, SPE Journal Editorial Board, SPE Journal (1996 - 2006)
- Invited speaker, Applied Math Colloquium, California Institute of Technology, Pasadena, California Institute of Technology (1996 - 1996)
- Invited speaker, Chemical Engineering, University of Southern California, Los Angeles, University of Southern California (1996 - 1996)
- Invited speaker, Elf Aquitaine Production, Pau, France, Elf Aquitaine (1996 - 1996)
- Invited speaker, SPE Forum Series in Europe on Upscaling, Aviemore, UK, Society of Petroleum Engineers (1996 - 1996)
- Member, Society of Petroleum Engineers (SPE) (1994 - Present)

## Education

- Ph.D., Massachusetts Institute of Technology, Chemical Engineering (1986)
- M.S., Massachusetts Institute of Technology, Chemical Engineering Practice (1982)
- B.S., Pennsylvania State University, Chemical Engineering (1981)

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