

Tapan Mukerji

Professor (Research)

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Summary

The focus of Mukerji's multi-disciplinary research, with students and colleagues, has been on integrating rock physics, wave propagation physics, geology, spatial data science and machine learning, and their broad applications in reservoir characterization, stochastic geomodeling, uncertainty quantification and value of information in Earth sciences. He uses theoretical, computational, and statistical methods, to discover and understand fundamental relations between geophysical data and subsurface geological properties, to quantify uncertainty in subsurface models, and to address value of information for decision making under uncertainty. In addition to numerous journal publications, Mukerji has co-authored *The Rock Physics Handbook, Quantitative Seismic Interpretation, Value of Information in the Earth Sciences, Quantitative Analysis of Geopressure for Geoscientists and Engineers*, and *Seismic Reservoir Modeling: Theory, Examples, and Algorithms*. He has extensive experience in conducting leading-edge research, teaching, and directing graduate student research. He has been an invited keynote speaker and lecturer for short courses on rock physics and geostatistics, and research consultant for the energy industry worldwide.

Professional Experience

Sep 2022 – present	Professor (Research), Energy Science & Engineering, and Depts. of Geophysics and of Earth & Planetary Sciences, Stanford University
Jan 2008 – present	Co-director, Stanford Center for Earth Resources Forecasting (SCERF)
Jan 2019 – Aug 2022	Professor (Research), Energy Resources Engineering, and by courtesy, Depts. of Geophysics and of Geological Sciences, Stanford University
Sep 2017 – Dec 2018	Associate Professor (Research), Energy Resources Engineering and Geophysics by courtesy, Stanford University
Jan 2013 – Aug 2017	Associate Professor (Research), Energy Resources Engineering, and Geophysics, Stanford University
Jan 2008 – Dec 2012	Associate Professor (Research), Energy Resources Engineering, Stanford University
Nov 2019 – 2022	Co-director, Stanford Rock and Geomaterials Project (SRGP)
Jan 2010 – 2024	Co-director, Stanford Basin Processes and Subsurface Modeling (BPSM)
Sep 2006 – Dec 2007	Senior Research Scientist, Stanford University
Sep 1999 – Aug 2006	Research Associate, Stanford University
1995 – 1999	Post-doctoral Fellow, Stanford University

Education

1995	Ph.D. Geophysics	Stanford University, USA
1989	M.S. Geophysics	Banaras Hindu University, India
1985	B.S. Physics (Hons.), Geology, Math	Banaras Hindu University, India

Awards

- Best Paper, Honorable Mention, Geophysics, Society of Exploration Geophysicists, 2020
- Publication Competition Award, Finalist, The Decision Analysis Society of the Institute for Operations Research and Management Science (INFORMS) for the book “*Value of Information in the Earth Sciences: Integrating Spatial Modeling and Decision Analysis*”, 2017
- ENI Award for “pioneering innovations in theoretical and practical rock physics for seismic reservoir characterization”, 2014
- Top 30 presentations, SEG Internat. Ann. Mtg., 2014
- Best Paper Award, Mathematical Geosciences, 2010
- Best Paper Award, Society of Petroleum Geophysicists (SPG), India, 2004
- Society of Exploration Geophysicists (SEG) J. Clarence Karcher Award (for distinguished achievement before age 35), 2000
- Best Paper Honorable mention, Geophysics, 1998
- Michael L. Haider Fellowship, Stanford University, 1997
- Cecil. H. Green Fellowship, Stanford University, 1989-90
- Council of Scientific & Industrial Research Fellowship Award, India, 1989
- M.S. First in University, Banaras Hindu University, India, 1989
- B.S. First in University, Banaras Hindu University, India, 1985

Invited Presentations

- Invited talk 6th Asia Pacific mtg. Near surface geoscience and engineering, Tsukuba, Japan, 2024
- Invited seminar, China University of Petroleum-East, Qingdao, China, Digital Rock Physics, 2024
- Invited keynote, 3rd Belt & Road Geophysical International Forum, Xian, China, 2024
- Invited talk IAMG conference Machine learning-based reservoir characterization at multi-scales: current research status, future directions, and challenges, Trondheim 2023
- Invited talk SLB-Software Technology Innovation Center (STIC), California
- Invited talk Hohai University, China, 2023
- Invited talk SEG Qingdao Workshop on Rock Physics -- New Challenges and New Developments, November 26-27, 2022 China University of Petroleum (East China), 2022
- Invited Keynote talk SEG Workshop on Advances in Reservoir Characterization for Better Understanding of Reservoir Properties, 2021
- Invited Keynote talk 1st EAGE Rock Physics Workshop in Latin America, 2021
- Invited lecture, Workshop on Measurement, Computation and Deep Learning in Geosciences, IIT(ISM), Dhanbad, India, 2021
- Invited talk, 2021 Rock Physics Workshop - How Far We Can Go, China University of Petroleum, Qingdao, China, 2021
- Invited talk, SEG-BHU Geo-Akarshaan, 2nd ed., Varanasi, India, 2021
- Invited panelist, Inversion and Machine Learning Techniques for Geophysical Data, Vaibhav Global Summit, India, 2020
- Invited Golden Jubilee Lecture, Geomodeling and Geostatistics for Subsurface Characterization and Uncertainty Quantification, Dept. of Applied Geology, Dibrugarh University, India, 2019
- Invited speaker, Computations in digital porous media, College of Mechanics and Materials, Hohai University, China, 2019
- Invited Keynote speaker, 4th EAGE Workshop on Rock Physics – The role of rock physics in reservoir modeling and simulation, Abu Dhabi, 2017
- Invited Keynote speaker, 15th International Congress of the Brazilian Geophysical Society (SBGF), Rio de Janeiro, 2017
- Invited speaker, Institute of Pure and Applied Mathematics (IPAM, UCLA) Workshop on Data Assimilation, Uncertainty Reduction, and Optimization for Subsurface Flow, 2017
- Invited speaker, COMSOL day, Porous Media Computations with 3D Imaging Data Sets, 2017

- Invited Keynote speaker, SEG Earth Model Forum, Rendering Rock Properties for Qualitative and Quantitative Interpretation, Vail, Colorado, 2015
- Invited speaker, Dhahran Geophysical Society, 2015
- Invited speaker, International Union of Pure and Applied Physics (IUPAP), Conference on Computational Physics, Guwahati, India, 2015
- Invited speaker, 3rd Petroleum Geostatistics Conference, EAGE, Biarritz, 2015
- Invited Keynote speaker, SPWLA Fall Topical Conference, Taos, New Mexico on Seismic Petrophysics – Unlocking the Value of Integration, 2013.
- Invited speaker, Joint SEG/SPE/AAPG Summer Research Workshop, New Advances in Integrated Reservoir Surveillance, La Jolla, California, USA, 2012
- Invited keynote speaker, Society of Petroleum Geophysicists (SPG) International Conference, Hyderabad, India, 2012
- Invited speaker, Recent Advances and Road Ahead, SEG Internat. Conference, San Antonio, 2011
- Geophysics Department Seminar, Stanford University, January 2011
- Invited speaker, Geological Society of Trinidad and Tobago, 2010
- Invited speaker, International conference on Geophysical Sciences – Energy, Climate and Evolution of Human Society, Banaras Hindu University, India, 2010
- Invited keynote speaker, Society of Petroleum Geophysicists (SPG) International Conference, Hyderabad, India, 2010
- Invited speaker, Near-surface geophysics session, AGU, San Francisco, 2009
- Invited speaker, ROSE consortium, NTNU, Trondheim, Norway, 2008.
- Invited speaker, Geophysical Society of Houston, 2008
- Invited speaker, SEG Development and Production Forum, Austin, Texas, 2008
- Invited keynote speaker, Society of Petroleum Geophysicists (SPG) International Conference, Hyderabad, India, 2008
- Invited keynote speaker, Petroleum Geostatistics conference, Cascais, Portugal, 2007.
- Invited speaker, SEG Summer Research Workshop, Quantifying Uncertainty in Reservoir Properties Prediction, Galveston, Texas, 2003

Professional Activities

- Member of AGU, AAAS, IAMG, SEG, EAGE
- Technical session and post-convention workshop co-organizer, IMAGE annual conference, 2025
- Associate Editor, *Computers and Geosciences* (2011 – 2023)
- Associate Editor, *Geophysics* (2001 – 2023)
- Technical Committee, SEG Annual Conference, 2018
- Technical Workshop Organizer, SBGF Annual Conference, 2017
- Technical Session Organizer, IAMG Annual Conference, 2014
- Technical organizing committee, SPE Workshop on Integration of 4D seismic and production data for reservoir management – Application to Norne (Norway), 2013
- First Opponent, Ph.D. Disputation – Dept. of Geosciences, University of Bergen, Norway, 2011
- Technical organizing committee, joint SPE/AAPG/SEG Applied Technology Workshop on Quantitative Interpretation: Reducing Uncertainty through Integration of Petrophysics, Geophysics, Geomodeling and Reservoir Simulation, 2010
- Review committee, Department of Energy's Environmental Management Science Program, 2003
- Co-chair, Technical Committee, 11th Venezuelan Geophysical Congress, 2002
- Reviewer for professional journals and funding agencies, 1990-present
- Served as session chair at professional conferences and forums, 1990-present