



BOARD OF DIRECTORS 2023-2024

EXECUTIVE COMMITTEE

President

Andrew Bungler is Associate Professor in the University of Pittsburgh's Department of Civil and Environmental Engineering. Dr. Bungler joined the University of Pittsburgh in 2013 after working for ten years in the Geomechanics Group within the Commonwealth Scientific and Industrial Research Organization (CSIRO) in Melbourne, Australia. He holds a Ph.D. in Geological Engineering from the University of Minnesota. His research interests include the mechanics of hydraulic fracturing, coupled fluid-shale interaction, and emplacement dynamics of magma-driven dykes and sills.

Vice President

Gabriel Walton is an Associate Professor at Colorado School of Mines. He received his Bachelor's and Ph.D. degrees in Geological Engineering from Queen's University in Canada. In addition to his academic efforts, Dr. Walton has also worked as an independent consultant and has led applied research efforts in collaboration with tunneling and mining industry partners. Dr. Walton's research interests include numerical modeling, mine ground control, applications of remote sensing and geophysics in rock mechanics and rock engineering, rock mass characterization, and post-peak behavior of rocks and rock masses.

Treasurer

Rita Sousa is an Associate Professor of Civil and Urban Engineering at New York University-Abu Dhabi. She received her degree in Civil and Environmental Engineering from the Technical University of Lisbon, her Master of Science degree from the Ecole Nationale des Ponts et Chausees, Paris, France, and her Doctor of Philosophy degree from the Massachusetts Institute of Technology, specializing in Geotechnical and Geo-Environmental Engineering. Before attaining her Ph.D., she worked for several years in the industry in Portugal and France as a structural and geotechnical design engineer. Dr. Sousa's research interests include tunneling, characterization, and representation of individual fractures and fracture networks, risk assessment, and stochastic modeling.

Immediate Past President

Gang Han is a Petroleum Engineering Consultant at Aramco Services Company. He has worked for over 20 years in global oil and gas fields, addressing geomechanics issues in unconventional development, reservoir performance, production optimization, and well planning and construction. Dr. Han's extensive expertise includes hydraulic fracturing, reservoir geomechanics, salt modeling, and sand management and control. He has over 55 publications and is a lead author of the book *Drilling in Extreme Environments*. He holds a Ph.D. in Chemical Engineering / Geomechanics from the University of Waterloo. Dr. Han is Chair of ARMA's Technical Committee on Hydraulic Fracturing.

MEMBERS

Zach Agioutantis is the Mining Engineering Foundation Professor and Chair at the Department of Mining Engineering at the University of Kentucky. Prior to that he was a Professor and the Director of the Rock Mechanics Laboratory at the Technical University of Crete in Greece for over 25 years. Over the years he has taught several mining engineering courses at the undergraduate and graduate level. Dr. Agioutantis has authored and co-authored over 80 peer-reviewed journal papers and over 300 conference papers in subjects related to subsidence, applied and theoretical rock mechanics, soil mechanics and slope stability, computer applications in mining and geotechnical engineering, mining systems and mining systems simulation. He has developed stand-alone commercial software for use in ground control and subsidence engineering as well as software used by MSHA for the stability analysis of underground workings. He has received numerous awards for his work, including the 2018 Syd and Felicia Peng Award (SME), the 2020 University of Kentucky College of Engineering Research award, and the 2022 SME Rock Mechanics award.

Tryana Garza-Cruz is a Principal Geomechanics Engineer and General Manager at Itasca Consulting Group. She holds an M.Sc. in Renewable Energy Science from the University of Iceland / University of Akureyri and a Ph.D. in Engineering Systems – Mechanical Specialty from Colorado School of Mines. She has extensive experience in application of numerical models to assess the stability of mining excavations, underground infrastructure, and surface subsidence and to understand the creep behavior of excavations in frozen ground. Dr. Garza-Cruz has also developed specialized tools using Bonded Block Models for the study of spalling rock mass response at the tunnel-scale.

Osman Hamid is a Petroleum Engineer Consultant with Saudi Aramco with 25 years of oil and gas industry experience in various aspects of conventional and unconventional Petroleum Reservoir Geomechanics Engineering, including 1D, 3D and 4D Geomechanics modeling and simulation using Finite Element models, hydraulic fracture modeling, rock physics, pore pressure and fracture gradient prediction, wellbore stability modeling, in-situ stress constrain and analysis for drilling events, sand prediction, reservoir geomechanics, and temperature modeling. He has consulted for the oil and gas industry for the development of solutions and workflows for geomechanics-related problems, especially in shale gas reservoir in U.S. land and deep-water oil and gas reservoirs located in the Gulf of Mexico. He currently works with Saudi Aramco, providing solutions for drilling, stimulation operations, and reservoir development using geomechanical modeling including advanced 4D dynamic models (coupling fluid-flow and geomechanics using Finite Element Models, FEM, and Finite Difference Models, FDM). He studied at the University of Khartoum in Sudan, the University of Saskatchewan in Canada, and Robert Gordon University in the UK. He has published a number of technical papers and filed six U.S. patents.

Mengsu Hu is a research scientist at the Lawrence Berkeley National Laboratory (LBNL). Dr. Hu's research focuses on multiscale numerical modeling and machine learning for analyzing coupled thermal-hydro-mechanical-chemical (THMC) processes from fundamental Earth science to subsurface engineering systems (e.g., nuclear waste disposal, geothermal energy and hydrogen storage). She is the sole developer of a series of novel numerical approaches and codes based on the numerical manifold method (NMM) and the extended finite volume method (XFVM). Her research interests broaden continuously, with her increased understanding of numerical modeling, machine learning, Earth and planetary science, and energy geosciences applications. Dr. Hu was one of the founding Co-Chairs of the CouFrac conferences; currently serves on the Editorial Board for *Geomechanics and Geophysics for Geo-Energy and Geo-Resources* (GGGG); and was a recipient of 2021 Director's Award for Exceptional Early Scientific Career Achievement at LBNL. In 2022, Dr. Hu was selected as a participant of National Academy of Engineering (NAE) U.S. Frontiers of Engineering symposium. In 2023, she was invited to serve on the Board of Reviewing Editors for the new National Academy of Sciences (NAS) journal PNAS Nexus. She was selected as an ARMA future leader in 2020, and served as the Technical Chair of the ARMA Atlanta 2023 symposium. Dr. Hu has worked as an instructor at UC Berkeley since 2019 and is enthusiastic about teaching the younger generation to use computational toolsets to solve Earth science and engineering problems.

Kathy Kalenchuk has a B.Sc. in Mining Engineering from the University of Alberta and M.Sc. and Ph.D. degrees in Geomechanical Engineering from Queen's University. Since attaining her Ph.D., she has been working as a geomechanics consultant, primarily in the mining industry. She is the President and Principal Consultant of the Canadian geomechanics consulting firm RockEng Inc., which provides global rock engineering and ground control services to the mining and civil industries. Dr. Kalenchuk has extensive industry experience in rock engineering and ground control. Her technical expertise focuses on geomechanics for underground mining, induced seismicity, and high-end numerical modeling. Dr. Kalenchuk is a co-chair of the ARMA Technical Committee on Induced Seismicity and a former ARMA Future Leader.

Shawn Maxwell is a Geophysical and Geomechanical Advisor, based in The Woodlands, Texas, for Orintiv's Anadarko Basin and Rockies operating areas. Previously Dr. Maxwell led petroleum geomechanics services at Itasca IMaGE, as well as microseismic innovations at Schlumberger, Pinnacle / Halliburton and ESG, and was also a Lecturer at Keele University in England. He was awarded a Ph.D. specializing in microseismology from Queens University in Kingston, Canada. Dr. Maxwell has acted as an SPE Distinguished Lecturer and an SEG Distinguished Instructor, published numerous papers, and authored the first textbook on microseismic interpretation.

Romain Prioul is a Scientific Advisor and Program Manager at Schlumberger-Doll Research center in Cambridge, MA. He attained his Ph.D. in 2000 in geophysics from Institut de Physique du Globe de Paris, France. From 2000 to 2005, Dr. Prioul was a research scientist at Schlumberger Cambridge Research center in the UK and at Schlumberger-Doll Research in Ridgefield, CT, and Cambridge, MA, USA. He became Research Program Manager in 2007 on geomechanics, sonic applications, and hydraulic fracturing modeling, and currently manages a team of researchers focused on providing solutions to CO₂ geological storage challenges, with an emphasis on geomechanical challenges for containment integrity.

Richard A. Schultz is a geomechanicist who works to advance underground energy storage and the energy transition toward a low-carbon energy future. Currently the owner of Orion Geomechanics LLC of Cypress, Texas, he was Senior Research Scientist at The University of Texas at Austin, Principal Geomechanicist with ConocoPhillips, and Foundation Professor of Geological Engineering and Geomechanics at the University of Nevada, Reno. Dr. Schultz has published over 115 research papers, five edited volumes, and 15 chapters in books or edited volumes, and has delivered over 350 presentations, 94 of which invited, to academia

and industry worldwide. His book *Geologic Fracture Mechanics* was published by Cambridge University Press. He is a member of the Interstate Oil and Gas Compact Commission (IOGCC), the National Association of Corporate Directors (NACD), and the nonprofit resource BoardSource, a Fellow of the Geological Society of America, and a licensed Professional Geologist in the State of Texas. He holds certificates from UC Berkeley (ESG: Navigating the Board's Role), Rice (Strategic Project Management), and UT Austin (Human Dimensions of Organizations with concentration in Organizational Improvement). He is the Founding Chair of ARMA's Distinguished Service Award Committee and ARMA's Technical Committee on Underground Storage and Utilization.

Herbert Wang is Professor Emeritus of Geoscience at the University of Wisconsin-Madison. He holds B.A. in physics from the University of Wisconsin-Madison, M.A. in Physics from Harvard University, and Ph.D. in Geophysics from MIT. At Wisconsin he taught introductory geology, geophysics, hydro-geology, and rock mechanics at the undergraduate level, as well as groundwater modeling, tectonophysics, and assorted seminars at the graduate level. He has also developed courses in environmental justice, including several workshops in the Lower Ninth Ward post-Katrina. His research interests include poroelastic behavior of rocks, geomechanical modeling, Enhanced Geothermal Systems, and applications of Distributed Acoustic Sensing (DAS). Dr. Wang is a member of project teams that investigate hydraulic stimulation and thermoelastic stress in the Sanford Underground Research Laboratory (SURF), and a member of the Science and Technology Analysis Team (STAT) for DOE's FORGE initiative. He has published nearly 100 technical research papers and books on Theory of Linear Poroelasticity and Introduction to Groundwater Modeling. Dr. Wang received the Wisconsin Alpha Chapter's 2003 Phi Beta Kappa Distinguished Faculty Award. He has also served as a rotator in the Office of Basic Energy Sciences at the Department of Energy and the Earth Sciences Division at the National Science Foundation.

R. Paul Young is Professor Emeritus and formerly Vice-President (Research) at the University of Toronto (2007-2014). He holds Ph.D. in Geophysics, M.Sc. in Rock Mechanics, and B.Sc. in Geological Sciences. Dr. Young has served as the Keck Chair in Seismology and Rock Mechanics at the University of Toronto, Chair of Earth Science at the University of Liverpool, and President of the British Geophysical Association. He has been awarded numerous honors for his research and innovation; most notably: Fellow of the Royal Academy of Engineering (UK), Fellow of the Royal Society of Canada, the Willet G. Miller Gold Medal of the Royal Society of Canada, the Queen Elizabeth II Diamond Jubilee Medal, and the John A. Franklin Award for Rock Mechanics by the Canadian Geotechnical Society.

Dr. Young is a Chartered Engineer and a Fellow of the American Association for the Advancement of Science. Over the past 40 years, Dr. Young has developed techniques that are used in monitoring and interpreting induced seismicity in the mining, petroleum, and nuclear waste disposal industries. Through his research groups at Queen's University, the University of Toronto, Keele University, and Liverpool University (U.K.), as well as spin off companies, he has made scientific advances in applied seismology and rock mechanics. Dr. Young has published over 250 scientific papers in refereed journals and conference proceedings, supervised over 40 Ph.D. students and post-doctoral research fellows, and developed innovative instrumentation systems for induced seismicity / acoustic emission monitoring. Dr. Young's research focus is on rock fracture dynamics and induced seismicity with application to natural geologic hazards such as earthquakes and volcanic activity and engineering applications, including mining, hydro-carbon recovery, hydraulic fracturing, and deep underground storage for nuclear waste isolation. As a Senior Consultant at present, Dr. Young continues to provide scientific and project management advice to industry, universities, and government.