



Examine geomodeling issues at the intersection of food, water and energy at the 20th Annual International Association for Mathematical Geosciences Conference held at Penn State's University Park campus in Pennsylvania, U.S.

Begin your week with short courses on digital rock physics, machine learning, geostatistics, data analysis, shale analytics, and subsurface fracture characterization. Learn from international experts throughout the week and conclude with a field trip exploring Pennsylvania's natural resources or the greater University Park area.

TOPICS

Oral and poster presentations throughout the week will cover these topics:

- Classical Geostatistics • Classical Statistics •
- Compositional Data Analysis • Fractal and Multifractal Modeling • Geohydrology • Geoinformatics • Geometry and Topology in Geosciences • Geophysical Data Processing, Interpretation and Machine Learning •
- Geotechnical Engineering • Coupled Modeling of Food, Water and Energy Systems • Machine Learning and Optimization Methods • Marine Geosciences: Coasts and Gateways • Medical Geology • Mining Modeling •
- Unconventional Oil and Gas Resources Modeling • Pattern Recognition Contributions to Inverse Methods in Geosciences • Spatiotemporal Geostatistics •
- Analysis, Simulation, and Optimization of Subsurface Systems • Fracture Characterization and Modeling •
- Coupling Geomechanics and Flow Systems in Subsurface Applications • Atmospheric and Earth System Science •
- Multiple Point Statistics

SPEAKERS



Susan M. Agar
Aramco Global Research Center



Peter Filzmoser
Vienna University of Technology



Alessandra Menafoglio
Politecnico di Milano



Vera Pawlowsky-Glahn
University of Barcelona

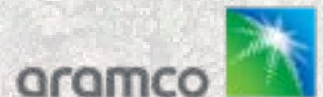
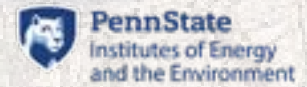
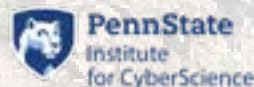
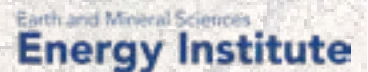
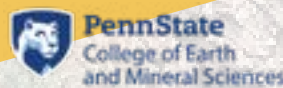


Phillipe Renard
University of Neuchâtel



Wenlei Wang
Chinese Academy of Geological Sciences

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Early bird registration ends

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SPEAKER BIOS & PRESENTATION TITLES



Susan M. Agar - *"Driving Rapid Transformations in the Energy Industry: The Convergence of Emerging Technologies and Mathematical Geoscience"*

Dr. Susan Agar is a leader for innovations in geoscience at the Aramco Global Research Center in Houston, Texas. In this role, she steers research for subsurface technologies destined to support geoscientists of the future in Saudi Aramco. Before joining Aramco in 2014, she defined and led the ExxonMobil (FC)2 Alliance, a multi-national, multi-disciplinary academic-industry alliance involving 160 researchers and industry professional in 14 universities in North America and Europe. Prior to her industry career, Dr. Agar was a tenured faculty member at Northwestern University and a visiting faculty member at Stanford University.



Peter Filzmoser - *"Outliers and Compositional Data"*

Dr. Peter Filzmoser is full professor at the statistics department of the Vienna University of Technology. His main research interests include robust statistics, methods for compositional data analysis, statistical computing with R, and many more. He is author of the books: "Applied Compositional Data Analysis. With Worked Examples in R (Springer 2018)", "Introduction to Multivariate Statistical Analysis in Chemometrics" (CRC Press, 2009), and "Statistical Data Analysis Explained. Applied Environmental statistics with R (Wiley, 2008). Currently, he is head of the Research Unit in Computational Statistics, Institute of Statistics and Mathematical Methods in Economics, Vienna University of Technology.



Alessandra Menafoglio - *"Object Oriented Spatial Statistics: An Approach to the Analysis of Georeferenced Complex Data"*

Dr. Alessandra Menafoglio is an Assistant Professor in Statistics at the Department of Mathematics of the Politecnico di Milano, within the laboratory for modeling and scientific computing (MOX). Her research focuses on the study of innovative statistical models and methods for the analysis of complex and large data, with particular emphasis on spatially distributed complex data. Recently, she also investigated computational intensive methods to address the issues arising when the data objects are distributed over irregularly shaped and textured regions. Menafoglio earned her PhD in Mathematical Models and Methods in Engineering in 2015 at Politecnico di Milano.



Phillippe Renard - *"Karst Aquifer Modeling, State of the Art and Challenges"*

Dr. Philippe Renard is Associate Professor of Hydrogeology at the University of Neuchatel Switzerland where he leads the Stochastic Hydrogeology Group. He graduated from the Nancy School of Geology in Nancy, France and obtained his PhD from Paris School of Mines in 1996. His research focuses on stochastic hydrogeology and aquifer. In geostatistics, he has developed multiple-point statistics methods and their applications to a wide range of problems from 3-D geological modeling to the simulation of climate variables. Renard has been the editor of Hydrogeology Journal, president of the geoENVia association and manages the Hydrogeologist Time Capsule.



Vera Pawlowsky-Glahn - *"Compositional Data in Geostatistics"*

Dr. Vera Pawlowsky-Glahn, emeritus professor at the University of Girona, Spain, studied mathematics at the University of Barcelona, Spain, and received her PhD from the Free University of Berlin, Germany. Her main research topic is the statistical analysis of compositional data (CoDa) both in the spatial and non-spatial case. With Dr. J.J. Egozcue, she developed sample space structure to CoDa which is now used in all applied sciences. IAMG awarded her the William Christian Krumbain Medal in 2006, Distinguished Lecturer in 2007, and the J.C. Griffiths Teaching Award in 2008. She has served as the IAMG president, 2008–2012, and past-president, 2012–2016.



Wenlei Wang - *"Geo-Information Extraction and Integration in Support of Mineral Exploration"*

Dr. Wenlei Wang is an associate professor in the field of Mineral Resources Quantitative Assessment and Geo-information Analytical Methodology at the Institute of Geomechanics, Chinese Academy of Geological Sciences. He obtained his PhD at York University, Canada in 2013 then worked for the China Geological Survey. His research includes proposing "fault trace-oriented" and anisotropic singularity index estimation algorithms, developing "geologically constrained" multi-source data integration model and introducing geographic regression analysis (GWR) model to mineral prediction. In 2018 he received funding from the Chinese National Natural Science Foundation-Outstanding Youth Foundation. Currently he serves on the editorial board of the journal of Applied Computing and Geosciences.

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