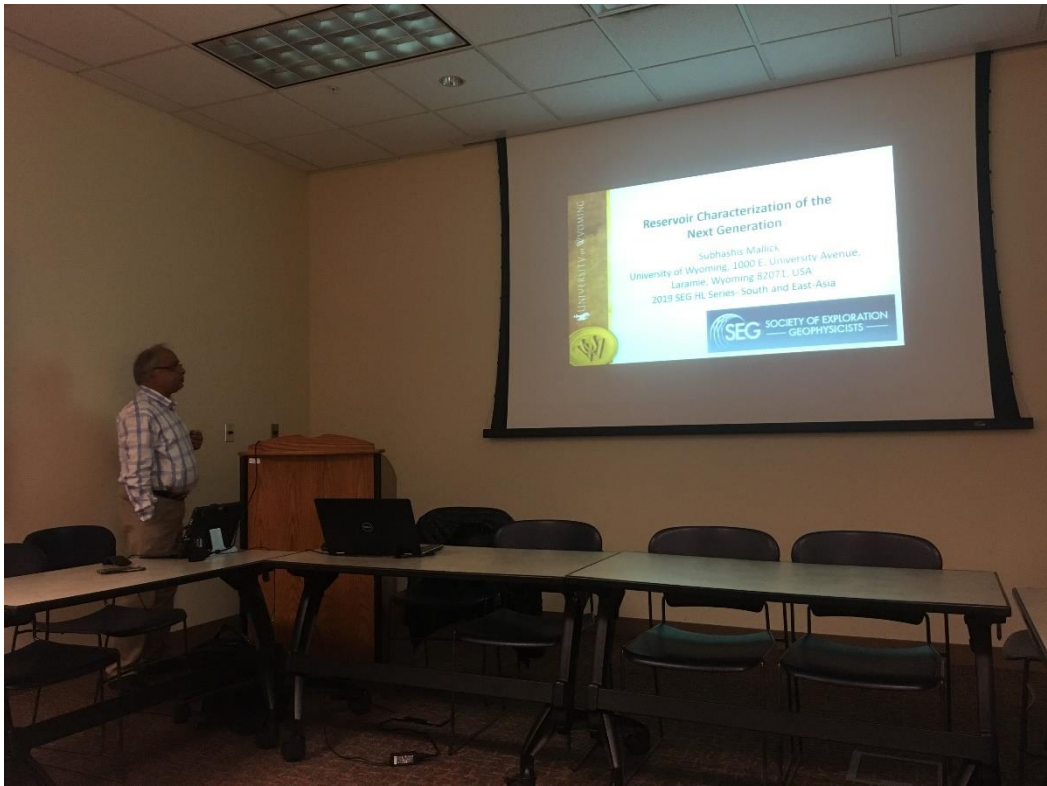


SPGNA 2019 Q1 Meeting Minutes

The Society of Petroleum Geophysicists, India (North American Chapter) 2019 Q1 meeting was held at the Cinco Ranch Branch Library in Katy, Texas on March 16, 2019. Thanks to all who attended the meeting. Special thanks to Dr. Subhashis Mallick for his presentation titled “[Reservoir Characterization for the Next Generation](#)”.

Our speaker [Subhashis Mallick](#) is the 2019 SEG Honorary Lecturer for South and East Asia. Dr. Mallick is the SER Professor of Geophysics at the University of Wyoming, Laramie, Wyoming, USA. Before joining the academia in 2008, he worked in the oil and gas industry for several years where he worked on the development and application of full waveform seismic modeling and inversion methods. He was the Associate Editor of Geophysics during 1993-1994. He has published several research papers in peer-reviewed journals and presented his work in international conferences around the world. His current research interests include seismic anisotropy, seismic modeling, inversion, and imaging, solving multi-physics optimization problems using machine learning and its application in reservoir characterization, and carbon dioxide sequestration.

Dr. Mallick emphasized future advancements in subsurface characterization will require a superior integration of the multi-physics problems through modern artificial intelligence techniques and advanced statistical methods compared to existing methods. From the geophysical end, isotropic and anisotropic visco-elastic prestack seismic waveform inversion need to be integrated with advanced imaging tools, such as reverse-time migration, to simultaneously estimate depth images and the subsurface visco-elastic properties of the P- and S-wave velocities, density, and P- and S- wave attenuations, and other anisotropic properties from three-dimensional seismic data volumes. Rock-physics models for estimating lithological and fluid properties (mineralogy, fluid saturation, porosity, permeability, in-situ stress field, etc.) from these visco-elastic models, well, and core data must be developed and incorporated into a rock-physics inversion scheme under a Bayesian framework to estimate lithological and fluid properties and the associated uncertainties. The visco-elastic models from selected locations must be used to train a machine-learning system, i.e., an artificial intelligence system, for predicting the visco-elastic models and the lithological and fluid properties directly from seismic data. Finally, combining these advanced geophysics/rock-physics/machine-learning tools with the reservoir simulation tools into an integrated framework for predicting the dynamic properties of the subsurface fluids and stress-fields would enable developing the reservoir characterization of the next generation.





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3. **Contribute by cash:** Please give your cash donation to any SPGNA team member and send an email to spgnam@gmail.com.

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*North American Chapter
Society of Petroleum Geophysicists*