

# Bay Area Geophysical Society Seminar Series



SEG 2018 Spring Distinguished Lecturer

**William W. Symes** (Rice University)

**April 30, 2018, 2:00 - 3:00 PM**

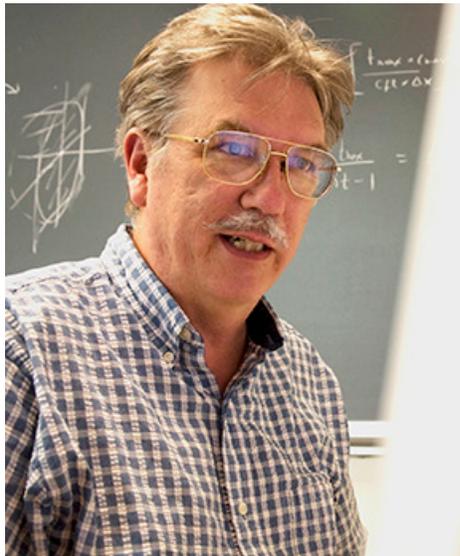
McCone Hall 265, UC Berkeley

## **Advanced imaging for practitioners**

Seismic migration has been a core geophysical technology for more than 50 years and continues to evolve in its capacity to reveal detailed quantitative information about the sedimentary earth. Integration of ever more accurate and complete seismic wave physics, more precise numerical methods, and rapidly improving computer hardware and software environments have made formerly “advanced” methods such as prestack reverse time migration (RTM) relatively routine.

This lecture will discuss two variants of RTM aimed at enhancing the significance of image amplitudes. Both true amplitude migration and least squares migration (LSM) are being actively researched; singly and in combination, they have many applications, some surprising. I will describe a number of these applications and illustrate them using synthetic and field data examples.

### Speaker Bio:



William W. Symes is Noah G. Harding Professor Emeritus and Research Professor in Computational and Applied Mathematics and the faculty member in Department of Earth Science of Rice University. He has developed grid-based eikonal solvers, data compression and multi parameter inversion algorithms, efficient viscoelastic modeling methods, QC methods for finite difference modeling, optimal check-pointing for RTM and FWI gradient calculation, wave equation based acceleration of iterative least squares migration, and the extended modeling/differential semblance concept for seismic velocity estimation. Symes founded a research consortium, The Rice Inversion Project, which has been sponsored for more than 25 years by firms in the oil and computer industries. Among other honors and awards, Symes has received the Ralph E. Kleinman and Geoscience Career awards from SIAM, he is a SIAM Fellow (inaugural class) and Fellow of the Institute of Physics. In 2015, he received the Desiderius Erasmus prize from the European Association of Geoscientists and Engineers.