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## UNDERSTANDING OIL RESERVOIRS: Reservoir Characterization by Combining Petrophysics and Core Analysis

**A 2-Day Special Course**

**Presented by Dr. Apostolos Kantzas & Dr. Jonathan Bryan**

- Date:** September 29 & 30, 2014  
8:30 AM to 4:00PM each day (*with 1 hour for lunch*)
- Location:** PERM Inc., 3956 29 Street NE, Calgary, AB T1Y 6B6
- Price:** \$1,700  
(*Meals and refreshments are included along with a digital copy the notes*)
- Registration:** Register at [courses@perminc.com](mailto:courses@perminc.com) OR [HERE](#) before September 20, 2014.  
There are a limited number of spaces!

Proper development of recovery strategies from oil & gas reservoirs requires a good understanding of the rock and fluid properties of which the reservoirs are made. This course is designed to provide participants with a detailed understanding of porous media fundamentals – specifically how oil or gas is trapped or mobilized in porous media. In addition, participants are given significant exposure to the field of core analysis, and are given the tools to understand the value and the challenges associated with taking measurements from core. The overall objective of this course is to provide participants with the means to understand how a complete petrophysical package (logs, routine core analysis and special core analysis) can be used to increase the value of their properties.

This course will be taught in the form of lectures with example problems dispersed throughout, which are designed to help course participants to internalize and understand the principles being taught. As part of the training and discussion, specific case studies will be provided that illustrate some of the challenges and pitfalls that can occur when characterizing hydrocarbon reservoirs. Participants are encouraged to bring laptop computers with Excel, which will be needed for some of the problems.



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### **DAY 1: Single & Multiple Fluids in Porous Media**

Introduction to reservoir characterization

Basic review of reservoir storage and flow

- Porosity – definitions and methods of measurement (log & core)
- Permeability – definitions and methods of measurement

Basic review of reservoir fluids

- Review of fluid properties (different types of reservoirs & associated recovery strategies from different reservoirs)
- Fluid sampling & PVT testing: techniques and procedures

Multiple Fluids in Porous Media Part 1

- Wettability, capillary pressure and fluid saturations

### **Day 2: Core Analysis Conclusion / Specialty Applications**

Multiple Fluids in Porous Media Part 2

- Relative permeability
- Mobile oil saturation concepts
- Fluid saturations from log & core analysis

Review of Reservoir Properties – discussion

Special Topic Case Studies

- Bitumen formations – measurements of porosity, fluid saturation, end point saturations
- Tight gas – measurements of porosity, permeability, initial gas saturation
- Tight oil – measurements of porosity, permeability, end point fluid saturations

### **About the Presenters**

Dr. Kantzas, P. Eng., founded the Tomographic Imaging & Porous Media Laboratory in 1994. A professor from the University of Calgary, Dr. Kantzas has tremendous experience in leading advanced research of porous media, primarily dealing with petroleum reservoir engineering issues. Expert in Tomographic Imaging, Porous Media Physics and Magnetic Resonance Sensor Technology, Dr. Kantzas has led a large research team at the University of Calgary previously under a Canada Research Chair Program and currently under an NSERC/AITF Industrial Research Chair in Fundamentals of Unconventional Resources (FUR).

Dr. Jon Bryan, P. Eng., did his MSc and PhD degrees at the University of Calgary under Dr. Kantzas' supervision. He has been a frequent collaborator in the Canada Research Chair and in Dr. Kantzas' NSERC Chair in Unconventional Resources. Jon has expertise in petrophysics and enhanced oil recovery, and manages many of the service and core flooding projects at PERM Inc.

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