



# FESAus Monthly Technical Meeting

## *“An MICP-Based Pore Typing Workflow- Core Scale to Log Scale”*

Paul Theologou, Chevron

### **Abstract:**

Carbonate reservoirs are inherently complex in their nature. This complexity is due to a combination of depositional rock fabric textures and diagenetic modification of the rocks. Post-depositional processes can modify the original petrophysical properties (e.g. permeability, irreducible water saturation and relative permeability) and result in a disconnection between original depositional rock fabric and current reservoir properties.

Pore types are a critical element of rock types since they exert a dominant control over petrophysical properties and fluid flow. Their proper definition is especially important in complex carbonates with multiple pore systems.

A procedure has been developed to describe the dominant pore types occurring within a carbonate reservoir based on the interpretation of standard core data, mercury injection capillary pressure data and wireline log data. This procedure incorporates the following components: sample selection methodology, data acquisition, data quality control and corrections, parameterization of the MICP curves using Gaussian decomposition, clustering, extrapolation of MICP derived pore types groups (PTGs) to all core plug samples, and lastly prediction in the log-domain.

The workflow described is unique in that it describes the process from sample selection through log-scale prediction, PTGs are defined independently of the original depositional geology, parameters which describe the whole MICP curve shape are utilized, and objective clustering is used to remove subjective decisions.



### **About the Presenter:**

Paul Theologou received his Ph.D. in applied geology from the University of South Australia (1997). He worked as a petrophysicist at Santos Ltd., A.C.S. Laboratories, and Mincom Ltd. before starting a petrophysical consulting company (that became the Saros Group) in 2000. From 2008 until 2015 Paul worked at Chevron Energy Technology Company in Houston within the R&D unit where he was involved with developing petrophysical interpretation workflows. In 2015 Paul returned to Perth as the Petrophysics Team Lead for Chevron Australia Pty Ltd. Paul is a member of SPWLA, SCA and PESA.

**DATE:** **WEDNESDAY 11<sup>th</sup> May 2016**, 12:00 – 1:30 PM **VENUE:** Hotel IBIS- 334 Murray Street, Perth

**COST:** Members \$30.00; Non Members \$40.00; Students/Retirees \$10.00

Online registration at [www.fesaus.org](http://www.fesaus.org)

Note: limited seats for unregistered attendees may be available: \$50.00 cash door charge

