



## NEWSLETTER May 2011

### *Message from the LPS President:*

I hope you all managed to take some time off during the Easter and May Day period. I am enjoying the sunny weather but my lawn now has a distinctly dual porosity look to it, i.e. matrix porosity in the soil and some rather large looking desiccation cracks/fractures. This is one of the problems with living in a clay rich area.

Our next evening meeting (9<sup>th</sup> May, 6.30pm at the Geological Society) will focus on the wonders of clay rich hydrocarbon reservoirs. Sam Matthews and David Hartigan from Leicester University will be talking about their work on shaly sands and shale gas. Both Sam & David have received help with their studies through the LPS Iain Hillier Academic Award Scheme. Please support Sam and David and come along to what promises to be two very interesting talks.

The programme for the Pore Pressure Prediction and Wellbore Stability one day seminar on the 16<sup>th</sup> June has been finalised. See this newsletter for an agenda and registration form. The programme should appeal to a wide range of disciplines and we expect to it to be popular. Please send your completed registration forms to Ian Draper, [ian.draper@bakerhughes.com](mailto:ian.draper@bakerhughes.com), as soon as possible to reserve your place.

Our VP Membership, Victoria, is heading off to Australia and so relinquishing her position on the LPS committee. A big thank you to Victoria for all her hard work and keeping membership numbers up. Peter Fitch from Imperial College has kindly agreed to step in as our new VP membership.

Hope to see you soon at one of our events.

All the Best

Adam

**Adam Moss: LPS President**



**Dates for Your Diary**

**Monday 9<sup>th</sup> May 2011, LPS Evening Meeting, Geological Society, London Piccadilly. 6.30pm.**

Sam Matthews, Leicester University.

"Rock Physics Modelling in Heterolithic Sandstone Reservoirs - linking petrophysical models to a geological framework".

David Hartigan, Leicester University.

"The Influence of Mineralogy, Geochemistry and Sedimentology on Petrophysical Properties in Fine Grain Successions".

**Thursday 16<sup>th</sup> June 2011, LPS One-Day Seminar, Geological Society, London Piccadilly.**

"Under Pressure" – Pore Pressure & Wellbore Stability.

**Monday 11<sup>th</sup> July 2011, LPS Evening Meeting, Geological Society, London Piccadilly. 6.30pm.**

Simon Stromberg, Senergy/Imperial College.

"Uncertainty (Monte Carlo)".



**Next Evening Talk:**

**“Rock Physics Modelling in Heterolithic Sandstone Reservoirs - linking petrophysical models to a geological framework”**

**Sam Matthews**

**Department of Geology, University of Leicester, sam50@le.ac.uk**

Heterolithic sandstone reservoirs are commonly referred to in the hydrocarbon industry as "shaly sands"; however such nomenclature disguises the varying and complex effects that different distributions of the small-grain component (silt and clay) can have upon the physical properties and exploration potential of the reservoir. The challenges of modelling the acoustic properties of such reservoirs are further increased by the large number of rock physics models available.

This presentation will provide an overview of the rock physics modelling techniques available for heterolithic sandstone reservoirs, which have recently become the subject of increased focus in hydrocarbon exploration. Typically techniques such as amplitude versus offset (AVO) analysis and seismic inversion are used to map the lateral and vertical extent of such fields, with rock physics models required to translate between seismic and rock properties. This work reflects direct industrial experience where a pragmatic approach is often taken; this is built upon using subsequent industry-sponsored academic research into the various modelling strategies available. We will cover the nature and variety of reservoir textures encountered in heterolithic sandstone reservoirs and how their sedimentological characteristics may help guide the selection of appropriate rock physics models for their interpretation. Despite the plethora of models currently available, basic understanding of the background of specific modelling strategies and their associated limitations / assumptions is poorly utilised. Improved understanding can greatly assist the choice of rock physics model with which to characterise reservoir intervals.



## **“The Influence of Mineralogy, Geochemistry and Sedimentology on Petrophysical Properties in Fine Grain Successions”**

**David Hartigan**  
**PhD Student, University of Leicester**

Understanding the fundamental controls on petrophysical variability in fine-grained successions is key to developing a predictive capability in energy exploitation. Fine-grained successions such as mudstones represent complex chemical systems that, despite their appearance in hand specimen, can be extremely heterogeneous. The sediment source mineralogy and subsequent burial history of fine grained successions will control the type of grains and clay minerals present, and the depositional processes will determine the distribution and organisation of these grains. Therefore source, depositional processes and diagenesis will contribute to chemical variations that, in turn, will control the petrophysical properties of these fine-grained successions. This project aims to link integrated geological studies (mineralogy, chemistry, sedimentology) to petrophysical analysis in order to improve our understanding of how best to populate petrophysical models within fine grained successions such as mudstones. Research will focus on analysing and integrating geological and petrophysical data from a current shale exploration target.

This talk will present a basic overview of the project, and initial findings of background research / literature review. The physical and chemical properties of mudstones will be reviewed. Problems faced in producing an accurate petrophysical interpretation of these fine-grained lithologies will be discussed; aligning high resolution, fine-scale (sub cm) variations in chemistry, sedimentology and mineralogy with relatively low resolution well log analysis.



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London Petrophysical Society  
One-day Seminar

# “Under Pressure”: Pore Pressure Prediction & Wellbore Stability

Thursday 16<sup>th</sup> June 2011  
At the Geological Society, London

## Objective

A series of presentations to review the current approach and thoughts on  
Pore pressure prediction and wellbore stability

## Presentations to include:

**Keynote & Lusi mud volcano, Indonesia** (*Ikon Science*)  
**Geomechanics for drilling** (*BG Group*)  
**Pore pressure prediction for exploration & appraisal wells** (*BP*)  
**Integration of wellbore stability & pore pressure  
prediction studies into well design** (*Senergy*)  
**Advanced geomechanics workflows for drilling** (*Schlumberger*)  
**Wellbore stability issues** (*Baker Hughes*)  
**Integrated pressure prediction in the central North Sea** (*Maersk*)  
**Pore pressure prediction from seismic** (*Ikon Science*)  
**Pore pressure: What do you do when models do not agree?** (*Tullow*)

Registration Cost: £150 for LPS/PESGB/AFES/SPE Members,  
£175 for Non-members (LPS is not VAT registered)

For further information and registration details please  
visit [www.lps.org.uk](http://www.lps.org.uk) or e-mail:  
[ian.draper@bakerhughes.com](mailto:ian.draper@bakerhughes.com)



**'Pore Pressure Prediction & Wellbore Stability' Seminar 16<sup>th</sup> June 2011 Agenda (preliminary)**

Time	Item	Presenter	Company	Title of Talk
09:00	Registration	Ian Draper	LPS	
09:15	Introduction	Adam Moss/Iain Whyte	LPS	
09:30	Keynote	Richard Swarbrick	Ikon Science	Keynote: The challenges of pore pressure and fracture gradient predictions.
10:00		Miltiadis Parotidis	BG Group	Geomechanics for drilling.
10:30		Gareth Yardley	Maersk Oil	Integrated pressure prediction in the central North Sea.
<b>11:00</b>	<b>Coffee</b>			
11:30		Ed Hoskin	Ikon Science	Pore pressure prediction from seismic.
12:00		Stephan Petmecky	BP	Pore pressure and fracture gradient prediction for E&A drilling.
12:30		Chris Ward	Baker Hughes	The pressure transition zone to the Jurassic pressure system in the Central North Sea.
<b>13:00</b>	<b>Lunch</b>			
14:00		Tony Batchelor	Geoscience	Wellbore stability
14:30		Mark Herkommer	Schlumberger	Distinguishing Wellbore Breathing from Formation Influx.
15:00		Jackeline Rodrigues	Baker Hughes	Wellbore stability
<b>15:30</b>	<b>Tea</b>			
16:00		Nick Koutsabeloulis	Schlumberger	Advanced geomechanics workflows for drilling.
16:30		Anthony Proughten	Senergy	Integration of wellbore stability and pore pressure prediction into well design.
17:00		Gordon Holm	Tullow	Pore pressure: What do you do when models do not agree?
<b>17:30</b>	<b>Wine &amp; Savouries</b>			

**Job Advertisement:**



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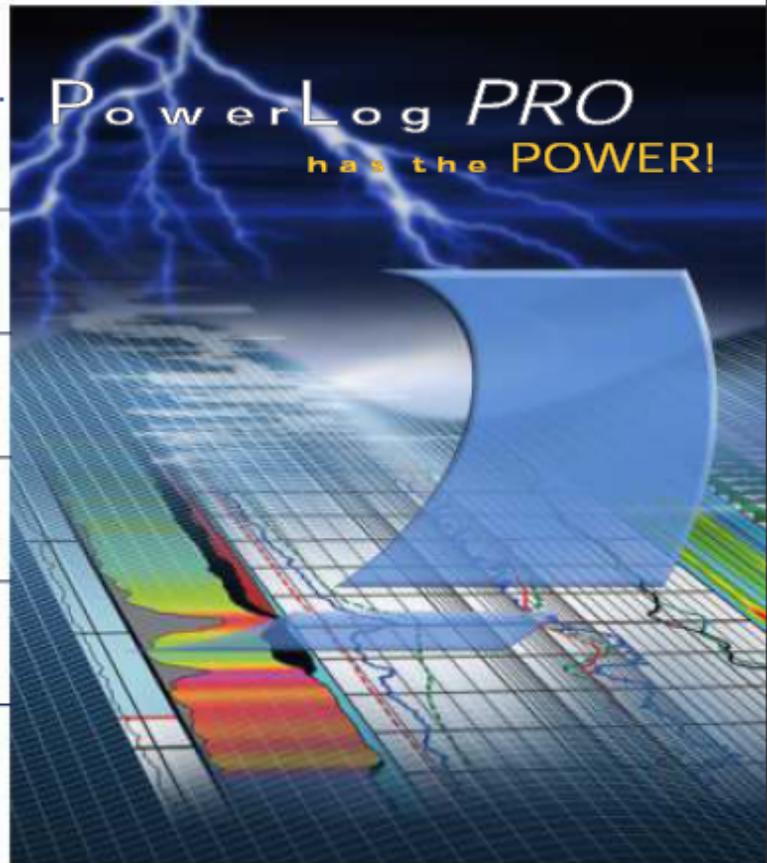
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