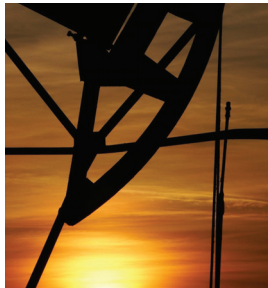


# SPWLA 2019 SYMPOSIUM

The Woodlands, Texas



60<sup>th</sup> ANNUAL SYMPOSIUM  
Society of Petrophysicists and  
Well Log Analysts  
June 15-19, 2019

# PROGRAM



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# Welcome to The Woodlands!

## The 60th Annual SPWLA Symposium



The Houston Chapter of the Society of Petrophysicists and Well Log Analysts (SPWLA) is pleased to invite you to attend the 60th Annual SPWLA symposium June 15-19, 2019 in The Woodlands, Texas. This symposium will be an opportunity to celebrate the 60th anniversary of the SPWLA, an organization that continues to globally promote and facilitate petrophysical education and an awareness of the role petrophysics plays in the oil and gas industry and scientific community.

The members of SPWLA are at the vanguard of petrophysical and formation evaluation (FE) development and the annual SPWLA symposium is the premier forum where these ideas are presented and exhibited to the community at large. The symposium serves to facilitate the confluence and distribution of this information, through short-courses, oral presentations, and the exhibition, in a readily consumable form that the delegates and selected distinguished speakers can then propagate to the global community. Apart from this, the social events serve to promote camaraderie and networking within the petrophysical and FE community, serving as a significant motivation for delegate attendance. The 2018 symposium in London was a smashing success, and we expect that success to continue through the 2019 meeting in The Woodlands.

The symposium will be held at The Woodlands Waterway Marriott Hotel and Convention Center in The Woodlands, Texas, a first-class venue located on the iconic Woodlands Waterway. The coupling of the hotel with the convention center affords the opportunity to host the short courses, technical presentations, exhibitions, and a good night's sleep under one roof. In the event that you want to venture outside the venue, a variety of restaurants and shops are located within walking distance. Furthermore, The Woodlands contains over 140 parks, 214 miles of hiking and bike trails, pools, public art, water sports, and signature golf courses. The city is aptly named, with much of the area's original forest left intact. The ubiquity of tree-lined roadways led a visiting architect to grant it the moniker of "the invisible city".

Prior to the technical sessions and exhibitions, the opening weekend plays host to two field trips, a variety of short courses, and the student paper competition. The events lead-off with a field trip trip to Galveston Island and the Brazos River Delta to study modern reservoir analogs, both hosted by geologists from ConocoPhillips and the University of Houston. An offering of seven short courses will be available, covering topics ranging from the practical applications of acoustics to advanced formation testing.

# Welcome to The Woodlands!

## The 60th Annual SPWLA Symposium

On Sunday, come meet the industry's future leaders as the top students from around the world present their work in the Student Paper Competition. To cap-off the opening weekend and kick-off the technical sessions and exhibitions, Halliburton is hosting the Icebreaker social on Sunday evening.

The technical presentations and exhibition are set begin Monday morning. For an update on all things SPWLA, the annual business meeting luncheon will take place after the morning technical program. Monday ends with an invitation from Baker Hughes GE, to join them for an evening social event. Usually, Tuesday's schedule is very similar to Monday's. However, this year, the Tuesday technical programs will contain dual, concurrent sessions. Come honor the achievements of your peers at the annual awards luncheon following the morning program. On Tuesday evening, Schlumberger will be hosting the third and final evening social. Wednesday will see the close of the technical sessions and exhibition, with the annual Leadership Luncheon taking place after the morning program. Remember to stick around to the end of the afternoon technical session, where you can put your badge in the hat for a chance to win the door prize.

While the delegates are participating in symposium activities, their families have a variety of wonderful activities available. From Monday to Wednesday, the Hospitality suite will be available for lounging, socializing, or grabbing a light snack. On Monday, a trolley tour of Market Street will familiarize guests with nearby dining and shopping. If you are up for a road trip to satisfy your sweet tooth and your penchant for history, a trip to Brenham, Texas for tours of the Blue Bell Creamery and the George Herbert Walker Bush Presidential Library is available.

If your sweet tooth is still not satisfied, a visit to Chocolate Passion to sample their hand-made confections and coffees should do the trick. Since there are few things that complement chocolate as effectively as wine, this excursion also provides a selection of wine pairings and tour of the winery.

The Houston Chapter and organizing committee look forward to welcoming you to the 60th Annual SPWLA symposium in The Woodlands.

Jeff Crawford  
General Chairman  
SPWLA 2019 Committee

## Keynote Speaker



**Arvind Sharma** believes that data integration and machine learning will be pivotal to this industry's future success. He has 10+ years' experience in seismic research; data processing and analysis, exploration prospecting, and drilling. Arvind holds a BS and MS from IIT Kharagpur and a Ph.D. from Virginia Tech.

Arvind has worked more than 10 years in seismic research, including data processing and analysis, exploration prospecting, and drilled several wells. At TGS, Arvind pioneers the Data and Analytics group through the development of new AI and Machine learning products and services. His mission is to create a platform to integrate and analyze all available sub-surface information for risking and decision making.

In his spare time, Arvind enjoys rooting for the Houston Rockets with his wife and daughter.

## General Information

*Note: All events take place at Woodlands Waterway Marriott Hotel and Convention Center unless indicated otherwise.*

### REGISTRATION

Registration for all attendees, spouses and guests will be located in Town Center Assembly

**Hours:**

Saturday, June 15	7:00 a.m.-5:00 p.m.
Sunday, June 16	7:00 a.m.-5:00 p.m.
Monday, June 17	7:00 a.m.-5:00 p.m.
Tuesday, June 18	7:30 a.m.-5:00 p.m.
Wednesday, June 19	7:30 a.m.-12:00 noon

### STUDENT PAPER COMPETITION

**Sunday, June 16, 8:00 a.m. – 5:00 p.m.**

The full day competition will be held in Waterway 7. Papers will be judged and cash prizes will be awarded to the winners at the end of the competition. Students are encouraged to attend the Tuesday luncheon to be recognized during the Annual Awards Ceremony.

### EXHIBITION

**Town Center North Hall**

**Exhibit hours are:**

Monday, Tuesday and Wednesday 8:00 a.m.- 5:00 p.m.

**Please note:** For safety consideration, no one under the age of 13 will be allowed in the exhibit hall.

### OPENING SESSION AND SPECIAL GUEST SESSION

**Monday, June 17, 8:00 a.m.**

Join us in Town Center South Hall where General Chair, Jeff Crawford will deliver the SPWLA 60th Annual Logging Symposium opening remarks and the introduction of the Keynote Speaker; Arvind Sharma, TGS, VP of Data and Analytics. Immediately following, SPWLA Vice President of Technology, Jim Hemingway will officially open the technical session.

## General Information

### **SPEAKER BREAKFAST**

All speakers and Session Co-Chairs are encouraged to attend a complimentary breakfast on the morning of their session. Breakfast is served Monday through Wednesday 6:00 a.m. – 8:00 a.m. in Waterway 3.

### **SPEAKER PREPARATION CENTER**

All speakers are encouraged to view their presentation in the Preparation Center and have their file checked by the projectionist at their earliest convenience. The Preparation Center will provide a computer for speakers to load their PowerPoint® presentations onto the symposium's computer network and verify compatibility and consistency with the system. The Preparation Center is open Sunday 9:00 a.m. - 5:00 p.m. and Monday - Wednesday 7:00 a.m. - 5:00 p.m. in Oak Ridge North.

### **POSTER PRESENTATIONS**

Digital posters on touch screen monitors for open viewing in Town Center North Hall during Exhibition hours Monday - Wednesday. Poster presentation sessions, authors in attendance with dedicated time and day.

### **SPOUSE/GUEST HOSPITALITY SUITE**

Hospitality Suite is open Monday through Wednesday, 8:00 a.m. to 5:00 p.m. in Cochran's Crossing.

### **DOOR PRIZE DRAWING**

The door prize will be drawn immediately after the close of the technical session, Wednesday, June 19 in Town Center South Hall. YOU MUST BE PRESENT TO WIN!

### **SIG MEETING**

Nuclear Logging SIG Meeting, June 16, 5:00 p.m. to 6:00 p.m. (Waterway 8)

Education SIG Meeting, June 19, 5:30 p.m. to 6:30 p.m. (Waterway 2)

PDDA 2019 SIG Meeting, Thursday, June 20, 8:00 a.m. to 5:00 p.m. (Anadarko Corporation Headquarter)

NMR SIG Meeting, June 20th - 21st, 2019 (Southwest Energy Complex)



# Symposium Highlights

*All functions will be held in The Woodlands Waterway Marriott Hotel and Convention Center unless otherwise indicated. Please confirm exact location and timing prior to event from information available at registration.*

## Saturday, June 15

<b>Field Trip</b> – Modern Galveston Island and the Brazos Departs from Woodlands Waterway Marriott Hotel	8:00 a.m. - 6:00 p.m.
<b>Registration</b> – Town Center Assembly	7:00 a.m. - 5:00 p.m.
<b>Workshop 1</b> – Waterway 1 (Practical Applications of Acoustics)	8:00 a.m. - 5:00 p.m.
<b>Workshop 2</b> – Waterway 2 (Advanced Applications of Wireline Formation)	8:00 a.m. - 5:00 p.m.
<b>Workshop 3</b> – Waterway 3 (Saturation height modelling)	8:00 a.m. - 3:00 p.m.
<b>Workshop 4</b> – Waterway 6 (Petrophysical Applications of Imaging)	8:00 a.m. - 5:00 p.m.

## Sunday, June 16

<b>Registration</b> – Town Center Assembly	7:00 a.m. - 5:00 p.m.
<b>Workshop 5</b> – Waterway 1 (Advances in Resistivity and Dielectric Logging)	8:00 a.m. - 5:00 p.m.
<b>Workshop 6</b> – Waterway 2 (Value of Data: Getting the right balance)	8:00 a.m. - 5:00 p.m.
<b>Workshop 7</b> – Waterway 3 (Cased-hole Formation Evaluation)	8:00 a.m. - 5:00 p.m.
<b>Workshop 8</b> – Waterway 6 (Applications of Geomechanics in Conventional)	8:00 a.m. - 5:00 p.m.
<b>Student Paper Competition</b> – Waterway 7	8:00 a.m. - 5:00 p.m.
<b>Speaker Preparation Center</b> – Oak Ridge North	9:00 a.m. - 5:00 p.m.
<b>Technology Committee Meeting</b> – Waterway 7	5:00 p.m. - 6:00 p.m.
<b>VP Publications Meeting</b> – Waterway 8	5:00 p.m. - 6:00 p.m.
<b>Nuclear SIG Meeting</b> – Waterway 3	5:00 p.m. - 6:00 p.m.
<b>Icebreaker Reception</b> – The Westin at The Woodlands	6:30 p.m. - 8:30 p.m.

## Monday, June 17

<b>Speakers Breakfast</b> – Waterway 3	6:00 a.m. - 8:00 a.m.
<b>Speaker Preparation Center</b> – Oak Ridge North	7:00 a.m. - 5:00 p.m.
<b>Registration</b> – Town Center Assembly	7:00 a.m. - 5:00 p.m.
<b>Spouse/Guest Hospitality</b> – Cochran's Crossing	8:00 a.m. - 5:00 p.m.
<b>Exhibition</b> – Town Center North	8:00 a.m. - 5:00 p.m.
<b>Opening Remarks Keynote Address</b> – Town Center South	8:00 a.m. - 9:30 a.m.
<b>Technical - Morning Sessions</b> – Town Center South	10:00 a.m. - 12:00 p.m.
<b>Spouse/Guest Tour</b> – Shopping (Meet in Cochran's Crossing)	1:30 p.m. - 5:00 p.m.
<b>Annual Business Meeting and Lunch</b> – Montgomery Ballroom	12:00 p.m. - 1:10 p.m.
<b>Technical - Afternoon Sessions</b> – Town Center South	1:20 p.m. - 5:30 p.m.
<b>Digital Presentation Poster Session</b> – Town Center North	2:50 p.m. - 3:30 p.m.
<b>Monday Night Social Reception</b> – Departs from Woodlands	

# Symposium Highlights

Waterway Marriott

6:15 p.m. - 9:30 p.m.

## Tuesday, June 18

**Speakers Breakfast** – Waterway 3

6:00 a.m. - 8:00 a.m.

**Speaker Preparation Center** – Oak Ridge North

7:00 a.m. - 5:00 p.m.

**Registration** – Town Center Assembly

7:00 a.m. - 5:00 p.m.

**Spouse/Guest Hospitality** – Cochran's Crossing

8:00 a.m. - 5:00 p.m.

**Exhibition** – Town Center North

8:00 a.m. - 5:00 p.m.

**Technical** – Dual Session AM 1 - Town Center South

8:00 a.m. - 9:40 a.m.

**Technical** – Dual Session AM 1 – Waterway 4

8:00 a.m. - 9:40 a.m.

**Digital Presentation Poster Session** - Town Center North

9:50 a.m. – 10:30 a.m.

**Technical** – Dual Sessions AM 2- Town Center South

10:40 a.m. – 12:00 p.m.

**Technical** – Dual Session AM 2 – Waterway 4

10:40 a.m. – 12:00 p.m.

**Spouse/Guest Tour** – Blue Bell Creamery and Bush Library  
(Meet in Town Center Assembly)

7:00 a.m. - 5:00 p.m.

**Annual Awards Lunch** – Montgomery Ballroom

11:30 a.m.- 1:00 p.m.

**Technical** – Dual Session PM 1 - Town Center South

1:30 p.m. - 2:50 p.m.

**Technical** – Dual Session PM 1 – Waterway 4

1:30 p.m. - 2:50 p.m..

**Digital Presentation Poster Session** - Town Center North

3:00 p.m. – 3:40 p.m.

**Technical** – Dual Sessions PM 2- Town Center South

3:50 p.m. – 5:10 p.m.

**Technical** – Dual Session P M 2 – Waterway 4

3:50 p.m. – 5:10 p.m.

**Tuesday Night Social Reception** – 5 minute walk to venue

5:30 p.m. - 9:00 p.m.

## Wednesday, June 19

**Speakers Breakfast** – Waterway 3

6:00 a.m. - 8:00 a.m.

**Speaker Preparation Center** – Oak Ridge North

7:00 a.m. - 5:00 p.m.

**Registration** – Town Center Assembly

7:30 a.m. - 12:00 p.m.

**Spouse/Guest Hospitality** – Cochran's Crossing

8:00 a.m. - 5:00 p.m.

**Exhibition** – Town Center North

8:00 a.m. - 5:00 p.m.

**Technical** – Morning Sessions – Town Center South

8:00 a.m. - 9:40 a.m.

**Spouse/Guest Tour** – Meet in Cochran's Crossing  
(Chocolate and Wine Pairing)

10:00 a.m. - 5:00 p.m.

**Digital Presentation Poster Session** – Town Center North

9:55 a.m. – 10:35 a.m.

**Technical** - Morning Sessions – Town Center South

10:45 a.m. – 12:05 p.m.

**Lunch Break** – on your own

12:05 p.m.- 1:20 p.m.

**Leadership Lunch** - Waterway 2

12:05 p.m.- 1:20 p.m.

**Technical** – Afternoon Sessions – Town Center South

1:30 p.m. - 4:50 p.m.

**Closing Remarks and Door Prize Drawing**

4:50 p.m.

**Educational SIG** – Waterway 2

5:30 p.m. - 6:30 p.m.

## Thursday, June 20

**PDDA 2019 SIG Meeting** – Anadarko Corp Headquarters

8:00 a.m. - 5:00 p.m.

**NMR SIG Meeting** – Southwest Energy Complex

8:00 a.m. - 5:00 p.m.

# Symposium Exhibitors

Organization Name / Booth Assigned Number

Antares - 415

Baker Hughes, a GE Company - 201

CGG - 207

Cordax Evaluation Technologies

Core Labs - 216

Core Mineralogy Labs - 304

Daedalus Innovations - 413

Dassault Systems - 310

ECOTEK Corp - 106

EGAMLS Inc - 308

Emerson - 313

Eriksfiord, Inc - 217

ExLog - 317

Fracture ID - 411

Geolog Americas - 113

Geotek Ltd - 303

GeoMark Research - 14

GOWell - 208

H2 Laboratories - 104

Halliburton - 101

Harvey Rock Physics - 309

Imaging Systems Group - 117

Impact Selector - 208

KAPPA - 10

Lloyd's Register -213

NthDS LLC

Neuralog - 112

New England Research - 316

NUTECH - 417

Openfield Technologies - 416

Petromac - 100

Premier Oilfield Group

Qmineral

Schlumberger

Scientific Drilling International

Signum Instruments

Task Fronterra Geoscience

Texas Tech University

TGS

TGT Oil & Gas Services

University of Houston

SPWLA 2020 Host CWLS





## Symposium Sponsors

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Halliburton  
Maxwell Dynamics  
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**BAKER  
HUGHES**  
a GE company



**CNOOC**



**Oil & Gas**



**ConocoPhillips**



AkerBP

**EMERSON™**

**EXLOG**

EXCELLENCE LOGGING



**Maxwell  
Dynamics**

**HALLIBURTON**



geoInteriors

**Schlumberger**

# Workshops

## WORKSHOP 1

### PRACTICAL APPLICATIONS OF ACOUSTICS SHORT COURSE

**Instructor:** Alexei Bolshakov, Chevron, Doug Patterson, BHGE, Jennifer Market, Lloyd's Register, Matt Blyth, Schlumberger, Philip Tracadas, Halliburton, Brian Hornby, Halliburton, Rob Vines, Shell International E&P

**Date:** Saturday, June 15, 2019

**Time:** 8:00 a.m. - 5:00 p.m.

**Place:** Waterway 1

#### About the Course

Borehole acoustics measurements deliver answers that can be used across a wide range of oilfield applications, linking the geophysics world, through petrophysics and geomechanics, to applications within completions, long term production success and field development. This short course will focus on the value that borehole acoustics can bring by helping to solve many common problems or to provide useful information that cannot easily be obtained from any other sources. Topics covered will include:

- o Basics of borehole acoustics
- o Petrophysics Applications: Sourceless porosity and fluid ID
- o Geomechanics Applications: Rock mechanics and borehole stability
- o Acoustics for completion design (including anisotropic rock mechanics)
- o Geophysical Applications: QI and seismic interpretation
- o Cased-hole Applications: Well Integrity and Formation Evaluation
- o Operational issues, including job planning and basic QC to ensure successful data acquisition.

The course will include a short review of the basics of borehole acoustics but the focus of the course is on the practical application of the measurements. It will be assumed that attendees will have a basic working knowledge of how borehole acoustics tools work and how the data is processed for the

# Workshops

primary acquisition modes. The workshop would be held in partnership with the SPWLA Acoustics SIG and instructors will be sourced to deliver both the service company and operator perspective.

## WORKSHOP 2

### ADVANCED APPLICATIONS OF WIRELINE FORMATION TESTING

**Instructors:** Shyam Ramaswami, Shell; Sefer Coskun, BHGE; Richard Jackson, Schlumberger; Tony Van Zuillem, Halliburton; 2 other experts from operating companies : yet to be confirmed

**Date:** Saturday, June 15, 2019

**Time:** 8:00 a.m. - 5:00 p.m.

**Place:** Waterway 2

#### Abstract

Wireline Formation Testing has developed beyond the basic applications around pressures and fluid sampling and now forms an important sub-discipline on reducing key uncertainties in development projects.

This workshop aims to provide a series of talks that provide insight into:

- Latest technologies from service companies in the wireline formation testing domain
- Examples from Operating companies on how advanced wireline formation testing applications have helped reduce key rock and fluid property uncertainties for projects

Part of the workshop will be aimed at answering specific problems that are pre-submitted by workshop participants and utilising the expertise of the leading experts in the field of formation testing to help provide solutions to those problems.

## Workshops

This workshop is aimed at promoting constructive discussions of both existing and emerging technologies that can help reduce uncertainties.

Some of the applications that would be presented and discussed in this workshop include:

- Advanced Formation Fluid Typing and trends
- Geomechanical applications, particularly MicroFRAC operations : Key challenges and technologies to overcome these
- Dynamic testing : Expanding the envelope of deliverables of Wireline Formation Testing : Extended Wireline Formation Testing PTA (aka MiniDST)
- Extending the application of Wireline Formation Testing in tight reservoirs : Frac and Flow techniques
- Integrated Interpretation : The importance of integration with other subsurface discipline and examples

This workshop is aimed at discussing the pros and cons of different techniques and to promote healthy discussion on not just the technical merit of some of the advanced applications, but ideas on how to handle operational discussions with internal and external stakeholders.

### WORKSHOP 3 SATURATION HEIGHT MODELLING

**Instructor:** Iulian Hulea, Shell Global Solutions BV

**Date:** Saturday, June 15, 2019

**Time:** 8:00 a.m. - 3:00 p.m.

**Place:** Waterway 3

#### About the Course

Saturation height models (SHM) combined with fundamental rock properties like porosity and permeability form the base for most subsurface reservoir models. In contrast to porosity and permeability that are rock properties,



## Workshops

saturation height models are the result of fluids interaction with the rock. The saturation height model has a profound impact on the viability of a project hence we aim at having the highest possible accuracy. In building a SHM two main routes can be taken depending on data availability. Core derived SHM can be derived with the aid of core capillary pressures measurements, alternatively, log saturation can be used to derive a SHM. Ultimately, independent of the data source, the models have to be brought in agreement or Quality Controlled against other data already available in the models.

The objective of the short course is to provide the attendees with an overview of the principals of Saturation height modelling from core and logs. The shortcomings of these techniques are going to be highlighted as well as their strengths. Best route to obtain a robust model is going to be highlighted, an essential input in the Integrated reservoir model. Also, the application of core capillary pressure data for Rock typing will be touched upon. The critical importance of robust Quality Control of the models obtained on different working streams is illustrated by a strong emphasis on practical exercises as well as presenting the most advanced developments in the SHM area.

During the course the instructor (a hands-on practitioner) will attempt to use open literature data sets to illustrate various aspects of the SHM work and its applications.

### **WORKSHOP 4** **PETROPHYSICAL APPLICATIONS OF IMAGING AND IMAGE ANALYSIS**

**Instructor:** J. Funk and L.A. Hathon, University of Houston

**Date:** Sunday, June 16, 2019

**Time:** 8:00 a.m. - 5:00 p.m.

**Place:** Waterway 6

# Workshops

## Course Summary

This 1-day seminar introduces participants to the analysis, application and integration of core computed tomography (CT), and nuclear magnetic resonance (NMR) imaging techniques. In addition it introduces techniques for modeling rock properties using detailed analysis of thin section images. The physics, equipment and data processing for CT and NMR measurements are reviewed and applied for reservoir characterization and recovery examples. The course covers both basic and advanced applications extending from basic core depth shift considerations to core orientation and differentiation of rock fluid interactions. Applications of quantitative image analysis of thin section images, including modeling of absolute permeability, pore volume compressibility, and acoustic properties will also be discussed.

## Who Should Take the Course?

- Geologists, geophysicists, reservoir engineers, or petrophysicists recommending or directing core analysis measurements
- Core analysts or formation damage specialists working to develop improved laboratory measurements and procedures

## About The Instructors:

James Funk is currently manager of Core Imaging Consultants, LLC. Previously he was the core analysis subject matter expert and a Senior Petroleum Engineering Consultant with the Reservoir Engineering Technology Team of Saudi Aramco. Prior to his eighteen years with Saudi Aramco he spent twenty-one years at Texaco EPTD. His experience in the design, implementation and modelling of petrophysical laboratory measurements has provided the basis for over thirty publications and three patents in geosciences, petrophysics, and core analysis. He holds a B. A. in Chemistry from the University of Houston and a M. ChE. from the University of Florida.

Lori Hathon received a PhD in Sedimentary Petrology from the University of Missouri in Columbia. She spent approximately 25 years in industry principally at Shell International E& P, Inc. working on forward modeling of reservoir quality, imaging and image analysis, and modeling physical rock properties using image data. Dr. Hathon is now an Assistant Professor of Petroleum Engineering at the University of Houston.

# Workshops

## WORKSHOP 5

### ADVANCES IN RESISTIVITY AND DIELECTRIC LOGGING

**Instructors:** Hanming Wang, Roland Chemali, Hezhu Yin, John Rasmus, Teruhiko Hagiwara, Michael Rabinovich, Michel Claverie

**Date:** Sunday, June 16, 2019

**Time:** 8:00 a.m. - 5:00 p.m.

**Place:** Waterway 1

This event is an updated version of successful course held during the 53rd, 54rd & 59th Annual Symposium in Cartagena, New Orleans and London.

Resistivity logs continue to gain importance in Formation Evaluation, Well Placement, Reservoir Mapping. This one-day short course describes the latest technologies in electrical logging and dielectric logging and their multiple applications in the domains of petrophysics, reserve evaluation, and real time decisions. Several topics will be covered in this one-day workshop.

#### Electrical Anisotropy

Resistivity anisotropy logging plays a dual role. For the petrophysicist, it is one of the preferred methods for evaluating hydrocarbon content in laminated reservoirs, including turbidites. For the geologist anisotropy logs also measure structural dip. Wireline and LWD sensors for measuring anisotropy, and practical applications of the measurements will be presented and discussed. Case study from triaxial induction logging to identify potentially by-passed low resistivity pay formation, to predict folded geological structure nearby the salt flank and many more will be shared in the class.

#### Dielectric Log and Resistivity Frequency Dispersion

Introduced in the 1970's to help evaluate fresh water bearing formations, the dielectric log is also used to describe formation texture and other petrophysical parameters, based on electrical dispersion. In this topic, modern dielectric dispersion tool and interpretation methodology will be discussed. Case

## Workshops

study will demonstrate the main applications of the dispersion measurement such as shallow resistivity curve from dielectric logging, water filled porosity independent from water salinity and “Archie” parameters, saturation in formation with variable water salinity, thin bed analysis and carbonate texture analysis and many more.

### Interpretation of Resistivity Logs in HA/HZ Wells

In HAHZ wells, deep reading resistivity logs may be significantly influenced by nearby boundaries. This phenomenon sometimes called “polarization horns” which is very useful for geosteering, but detrimental for accurate formation evaluation. Advanced resistivity sensors and dedicated workflow helps lift the associated uncertainties. In this topic, we will discuss tool response characteristics of resistivity tools (wireline induction, LWD propagation, LWD azimuthal resistivity) in HAHZ well, briefly review modeling and inversion technique to achieve “true” resistivity and formation boundary and share case studies to demonstrate improving petrophysical analysis and reserve calculation through advanced processing.

### LWD Deep, Ultra-Deep Azimuthal Resistivity:

Since LWD azimuthal resistivity was first introduced a decade ago followed by ultra-deep azimuthal resistivity a few years ago, the new service brought significant upside to oil business. The main application of deep, ultra-deep azimuthal resistivity are, but not limited to, well placement, reservoir mapping, geo-stopping and look-ahead. In this topic, we will discuss the measurement physics, how to interpret Picasso-plot offered by service providers, the measurement sensitivity to distance-to-boundary, to dip angle and to anisotropy. We will share the successful stories, lessons learned and the best practice through case studies.

### Interpretation of the Anomalies of LWD Resistivity Logs in Common Complex Scenarios

Interpreting LWD resistivity logs is of importance for real-time operation

## Workshops

decision. However, the anomalies resulting from borehole, tool eccentricity, anisotropy, distance-to-boundary, drilling induced fracture, time-lapse and dielectric make the interpretation of real-time LWD resistivity logs a challenging task. In this chapter, numerical modeling result and cased studies will be shared to understand the tool response characteristics of LWD resistivity logs in aforementioned common complex scenarios.

The format will be a combination of presentations by the instructors, interactive discussion and exercises in small groups working on real problems.

### WORKSHOP 6

#### VALUE OF DATA: GETTING THE RIGHT BALANCE IN EXPLORATION AND APPRAISAL WELLS

**Instructor: Shyam Ramaswami, Shell; Clive Sirju, CNOOC Intl**

Date: **Sunday, June 3, 2018**

Time: 8:00 a.m. - 5:00 p.m.

Place: Waterway 2

#### **Abstract**

Getting the right data in exploration and appraisal wells to be able to make informed development project decisions is key but has been constrained in the recent past due to low oil price and uncertainty in the industry. Companies base major investment decisions on the data acquired to:

- Demonstrate the existence of potential field development prospects.
- Appraise field development opportunities to optimise development concepts.
- De-risk field development activities.
- Optimise field production.

This workshop aims to promote ideas and discussions on how the guardians of data acquisition deal with the tensions that have developed around value

## Workshops

and cost, and techniques to better define the value of data.

The format of the workshop will be a series of talks by different companies providing insights on:

- How companies handle value of data and define data acquisition programs
- Examples where projects have had sub-optimal definition due to lack of front end data loading

The second half of the workshop will concentrate on a group exercise designed to probe thinking around development of data acquisition programs.

This workshop example will give hands on application of a workflow you can use to help:

- Gain clarity on well objectives
- Review the Key Issues (i.e. risks and uncertainties) that need to be addressed
- Develop a blue-print for fit for purpose plan for well Data Acquisition Plan (e.g. data acquisition, processing and interpretation requirements) that focuses on addressing the Key Issues, and to prioritise actions.
- Communicate the Data Acquisition Plan in a simple and clear way, to secure buy-in from all stakeholders including partners.

The objective of the workshop is to share ideas on how to map out exactly what information we need to acquire at different stages of a project which meets stakeholder expectations, and more importantly how the tensions of well versus project costs are dealt with.

# Workshops

## WORKSHOP 7

### CASED-HOLE FORMATION EVALUATION

**Instructors:** Ahmed Badruzzaman and Dale Fitz

**Date:** Sunday, June 16, 2019

**Time:** 8:00 a.m. - 5:00 p.m.

**Place:** Waterway 3

#### **Abstract**

Numerical modeling is often necessary to reliably interpret well logs acquired in complex geological environments. Apparent resistivity and apparent porosity (density and neutron) logs cannot always be used as received from service companies to quantify petrophysical and compositional properties, especially in cases of spatially heterogeneous rock formations, high-angle and horizontal wells, dipping beds, presence of invasion, thin beds, and asymmetric shoulder beds, to mention but a few common cases. With the advent of fast and compact computers, well-log correction charts have become obsolete and inadequate to account for complex environmental effects on well logs. In addition, most of the modern wireline and LWD resistivity instruments such as multi-component induction, dielectric, azimuthal and extra-deep azimuthal resistivity acquire measurements that cannot be interpreted by simple log-correction techniques. Very often only numerical modeling can explain the observed measurement behavior and inversion or iterative forward modeling are the only options available to estimate accurate formation properties from a multitude of measurements, especially in well geosteering applications. The purpose of this practical and interpretation-oriented workshop is to describe and exercise the basic principles and concepts behind the numerical simulation and inversion of nuclear and resistivity logs, with emphasis on hands-on demonstrations, numerical modeling and field cases. Participants will be able to identify and examine specific field conditions where numerical modeling and inversion are the proper alternative to interpret well logs. Hands-on demonstrations will be given about the benefits and limitations of numerical modeling and inversion. At the end of this course, participants will be able to assess when modeling and inversion are or are not needed in the

## Workshops

interpretation of resistivity and nuclear logs; they will also have a practical formative base to resort to numerical modeling and inversion in the planning of their logging operations.

Topics:

- Introduction to concepts and principles of resistivity and nuclear log modeling.
- Live demonstrations of modeling in vertical and high-angle wells:
  - Effects of thin beds on and neutron logs.
  - Modeling in vertical wells: shoulder-bed effects, thin beds, non-symmetric shoulder effects, resistivity contrast, induction and laterolog, invasion effects.
  - Modeling in high-angle wells: relative dip effects, resistivity anisotropy effects, and “horn” effects.
- Introduction to concepts and principles of resistivity and nuclear log inversion. Automatic and user-guided inversion methods: Quo Vadis Inversion?
- Field cases of modeling and benefits to petrophysical interpretation.
- Best practices for when to model and when not to model well logs.
- Distance-to-boundary inversion in well geosteering applications
- Conclusions, recommendations, and best practices.

### WORKSHOP 8

#### APPLICATIONS OF GEOMECHANICS IN CONVENTIONAL AND UNCONVENTIONAL RESERVOIR DEVELOPMENT

**Instructors:** A. Mitra, MetaRock Laboratories; M.T. Myers, L.A. Hathon, University of Houston

**Date:** Saturday, June 15, 2019

**Time:** 8:00 a.m. - 5:00 p.m.

**Place:** Waterway 6

#### Course Summary

Depletion of existing conventional reservoirs and exploitation of unconventional, ultra-tight reservoirs are putting new challenges in front of



## Workshops

today's petrophysicists. In addition to understanding rock-fluid interactions and modeling reservoir volumes, they are also being asked whether the wellbore will remain stable in complex deep water environments or how hydraulic fractures will propagate in shale reservoirs. Along with knowledge of the physics of rocks and fluids, understanding the principals of solid mechanics applicable to rock deformation, termed geomechanics, is critical. This short course intends to provide a background on geomechanics principles and laboratory geomechanics measurements, address in detail various geomechanics issues in drilling, completion and production for both conventional and unconventional reservoirs, and illustrates how a wellbore-centered geomechanical model can be built from wireline data, and calibrated using laboratory measurement.

### **About The Instructors:**

Abhijit Mitra received a B.S. and an M.S. in Mining Engineering from Indian Institute of Engineering Science and Technology, and a PhD in Engineering Science from Southern Illinois University. He is currently a Geomechanics Consultant with MetaRock Laboratories in Houston. Prior to joining MetaRock he was with Schlumberger conducting applied research technical service related to geomechanics and core petrophysics. He is a board member of SPE's Geomechanics Technical Section.

Michael Myers received a PhD in Physics from the University of Michigan. He then joined Shell Oil Company and spent most of his career in Shell's research organization. During his time at Shell he ran their Petrophysical Sciences laboratory, and the Rock Physics Laboratory. He spent his last three years at Shell as their Principal Technical Expert for coring and core analysis. Dr. Myers is now an Associate Professor of Petroleum Engineering at the University of Houston.

Lori Hathon received a PhD in Sedimentary Petrology from the University of Missouri in Columbia. She spent approximately 25 years in industry principally at Shell International E& P, Inc. working on forward modeling of reservoir quality, imaging and image analysis, and modeling physical rock properties using image data. Dr. Hathon is now an Assistant Professor of Petroleum Engineering at the University of Houston.

# Technical Program

**MONDAY - JUNE 17TH**

**Opening Remarks**

- 8:00 **Opening Remarks**  
Chairman – Jeff Crawford, Halliburton
- 8:15 **Keynote Speakers**  
Arvind Sharma - Vice President, Data & Analytics at TGS
- 9:15 **Introduction of Technical Sessions**  
Vice President of Technology – James “Jim” Hemingway
- 9:30 **Break**

## **Session 1 – FORMATION EVALUATION OF CONV. RESERVOIRS I**

*Sponsored by Shell*

Co-Chairpersons: Ron Deady, APS Technology &  
Ferdinanda Pampuri, ENI S.p.A.



This session will cover case histories, new technologies and studies in clastics as well as carbonates. New rock classification techniques are introduced and the effect of texture on log response is discussed.

- 10:00 **A INTEGRATED MULTI-PHYSICS WORKFLOW FOR AUTOMATIC ROCK CLASSIFICATION AND FORMATION EVALUATION USING MULTI-SCALE IMAGE**; Andres Gonzalez, Lawrence Kanyan and Zoya Heidari, The University of Texas at Austin; Olivier Lopez, Equinor
- 10:20 **B A NEW APPARATUS FOR COUPLED LOW-FIELD NMR AND ULTRASONIC MEASUREMENTS IN ROCKS AT RESERVOIR CONDITIONS**; Paul R. J. Connolly, University of Western Australia, Joël Sarout and Jérémie Dautriat, CSIRO Energy; Eric F. May and Michael L. Johns, University of Western Australia

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- 10:40 C **DIGITAL ROCK TECHNOLOGY FOR ACCELERATED RCA AND SCAL: APPLICATION ENVELOPE AND REQUIRED CORRECTIONS;** Nishank Saxena, Amie Hows, Ronny Hofmann, Omer Alpak, Justin Freeman, Matthias Appel and Jesse Dietderich, Shell
- 11:00 D **DEVELOPMENT OF A RESERVOIR ROCK DIELECTRIC DATABASE;** Matthew Josh, Michael B. Clennell and Lionel Esteban, CSIRO Energy; Matthew Hopkins, University of Western Australia
- 11:20 E **THE SENSITIVITY OF DIELECTRIC SIGNALS TO CATION EXCHANGE CAPACITY IN SHALY SAND FORMATIONS AND ITS DEPENDENCE ON SALINITY, POROSITY, AND TORTUOSITY;** Chang-Yu Hou, Denise E. Freed and Jeffrey Little, Schlumberger
- 11:40 F **HETEROGENEITY IN THE PETROPHYSICAL PROPERTIES OF CARBONATE RESERVOIRS IN TAL BLOCK;** Umar Farooq, Jawwad Ahmed and Saqib Ali, MOL Pakistan; Farrukh Siddiqi, Syed Asad Ali Kazmi and Kashif Mushir, Weatherford
- 12:00 - 1:15 **LUNCH (Annual Business Meeting and Luncheon)**

### Session 2 – FORMATION EVALUATION BEHIND CASING

Co-Chairpersons: Jorge Sanchez-Ramirez, BHP & Hesham El-Sobky,  
ConocoPhillips

Formation evaluation techniques based on measurements made in cased wellbores including those that integrate openhole data with cased hole measurements. New measurements as well as techniques for better understanding existing measurements in cased wellbores will be presented.

## Technical Program

- 1:20 **G**    **LESSONS LEARNED FROM CASED-HOLE FORMATION EVALUATION ALONG UNCONVENTIONAL HORIZONTAL WELLS**; Michael Sullivan, Haijing Wang, Alexei Bolshakov, Lisa Song, Michael Lazorek, Vahid Tohidi and Yegor Se, Chevron
- 1:40 **H**    **IMPACT OF CEMENT QUALITY ON CARBON/OXYGEN AND ELEMENTAL ANALYSIS FROM CASED-HOLE PULSED-NEUTRON LOGGING AND POTENTIAL IMPROVEMENT USING AZIMUTHAL CEMENT BOND LOGS**; Haijing Wang, Michael Sullivan, Yegor Se, David Barnes, Chevron ; Michael Wilson, Cabinda Gulf Oil Co. Ltd; Michael Lazorek, Chevron
- 2:00 **I**    **THE NEUTRON DANCE: A QUEST FOR RELIABLE CASED-HOLE NEUTRON DATA FOR HIGH-TEMPERATURE STEAMFLOOD SURVEILLANCE**; Abbie V. Morgan, Ericka S. Harper and Andy S. Jerrett, Aera Energy LLC
- 2:20 **J**    **A SECOND LIFE FOR A GIANT: CASED-HOLE PULSED NEUTRON LOGGING IN COMPLEX COMPLETIONS AND CHALLENGING FLUID SCENARIOS**; Gabriele Duci, Roberto Zarauti, Alessandro Fasto, Marco Pirrone and Giuseppe Galli, Eni S.p.A.
- 2:40        **Break**

### Session 3 - E-POSTERS 1 (SESSION TIME 2:50 PM – 3:30 PM)

Chairpersons: Technology Committee

- K PS1**    **EVALUATION OF LIGHT HYDROCARBON COMPOSITION, PORE SIZE AND TORTUOSITY IN ORGANIC-RICH CHALKS USING NMR CORE ANALYSIS AND LOGGING**; Zeliang Chen, Philip M. Singer, Xinglin Wang and George J. Hirasaki, Rice University; Harold J. Vinegar, Vinegar Technologies LLC

## Technical Program

- L PS2** **WHAT IF THERE WAS A BETTER FORMATION-TESTING PROBE? A CASE STUDY ON OPTIMIZING FLOW GEOMETRY;** Camilo Gelvez and Carlos Torres-Verdín, The University of Texas at Austin, Yegor Se and Mayank Malik, Chevron Corporation
- M PS3** **ESTIMATING NET SAND FROM BOREHOLE IMAGES IN LAMINATED DEEPWATER RESERVOIRS WITH A NEUTRAL NETWORK;** Bo Gong, Dustin Keele, Emmanuel Toumelin and Simon Clinch, Chevron
- N PS4** **DISCOVERY OF NEW HORIZONS IN A 36 YEARS-OLD CONVENTIONAL OIL AND GAS PLAY BY UTILIZATION OF STATE-OF-THE-ART FORMATION EVALUATION APPROACHES: A CASE STUDY FROM THRACE BASIN, TURKEY;** Murat Fatih Tuğan and Ugur Yuce, Turkish Petroleum Corporation(TPAO)
- O PS5** **A RAPID NON-INVASIVE EVALUATION METHOD FOR RESERVOIR FLUID SAMPLES;** Ansgar Cartellieri, Erik Lehne and Maryam M. Alohal, Baker Hughes a GE Company
- P PS6** **TOWARDS A PETROPHYSICALLY CONSISTENT IMPLEMENTATION OF ARCHIE'S EQUATION FOR HETEROGENEOUS CARBONATE ROCKS;** Raghu Ramamoorthy, Independent, T. S. Ramakrishnan, Suvodip Dasgupta and Ishan Raina, Schlumberger
- Q PS7** **RESERVOIR PRODUCIBILITY INDEX (RPI) BASED ON 2D NMR T1-T2 LOGS;** Ravinath Kausik, Schlumberger-Doll Research; Tianmin Jiang, Schlumberger; Lalitha Venkataramanan, Schlumberger-Doll Research; Albina Mutina, Erik Rylander and Richard Lewis, Schlumberger
- R PS8** **MORE ACCURATE QUANTIFICATION OF FREE AND**

# Technical Program

**ADSORBED GAS IN SHALE RESERVOIRS;** Rafay Ansari, German Merletti, Pavel Gramin and Peter Armitage, BP

- S PS9 A MACHINE LEARNING FRAMEWORK FOR AUTOMATING WELL LOG DEPTH MATCHING;** Lin Liang, Thai Le, Timon Zimmermann, Smaine Zeroug and Denis Heliot, Schlumberger
- T PS10 NEW 4¾-IN. ULTRASONIC LWD TECHNOLOGY PROVIDES HIGH-RESOLUTION CALIPER AND IMAGING IN OIL-BASED AND WATER-BASED MUDS;** Peng Li, Jonathan Lee, Richard Coates and Rodney Marlow, Halliburton
- U PS11 ACCURATELY ESTIMATING SHEAR SLOWNESS USING DATA-DRIVEN QUADRUPOLE SONIC LOGGING-WHILE-DRILLING DATA PROCESSING;** Ruijia Wang and Richard Coates, Halliburton
- V PS12 FEASIBILITY STUDY OF DERIVING WATER SATURATION FROM LWD NMR TRANSVERSE RELAXATION TIME IN TWO SILICICLASTIC RESERVOIRS IN CHINA;** Xin Zhou, Chanh Cao Minh, Schlumberger; Yunjiang Cui, Xinlei Shi, CNOOC; Shim Yen Ham, Schlumberger; Ting Li, Chevron Energy Technology Company

## Session 4– NEW BOREHOLE LOGGING TECHNOLOGY

*Sponsored by CNOOC Ltd*

Co-Chairpersons: Clive Sirju, CNOOC Ltd &  
Donald L. Clarke, ExxonMobil



- 3:40 President's Message** – Jesús M. Salazar, Marathon Oil
- 3:50 W A NEW MULTI-FREQUENCY ARRAY-DIELECTRIC LOGGING SERVICE: TOOL PHYSICS, FIELD TESTING, AND CASE**

# Technical Program

## **STUDIES IN THE PERMIAN BASIN WOLFCAMP SHALE;**

Stanislav Forgang, Bill Corley, Alejandro Garcia, Amer Hanif, Fei Le, John Jones and Elton Frost Jr., Baker Hughes a GE Company; Stephanie Perry, Anadarko Petroleum Corporation

- 4:10 X **DIRECT MID-IR OPTICAL MEASUREMENT OF SYNTHETIC DRILLING FLUID FILTRATE CONTAMINATION DURING FORMATION-TESTER PUMPOUTS;** Ralph Piazza, Alexandre Vieira and Luiz Alexandre Sacorague, Petrobras, Christopher Jones, Bin Dai, Megan Pearl and Helen Aguiar, Halliburton
- 4:30 Y **IMPROVING PRODUCTION IN CHILD WELLS BY IDENTIFYING FRACTURES WITH AN LWD ULTRASONIC IMAGER: A CASE STUDY FROM AN UNCONVENTIONAL SHALE IN THE U.S.;** Claudia Amorocho, Cory Langford and Gregory Warot, Weatherford International, Erich Kerr and Ray Ambrose, EP Energy
- 4:50 Z **ENHANCING THE LOOK-AHEAD-OF-THE-BIT CAPABILITIES OF DEEP DIRECTIONAL RESISTIVITY MEASUREMENTS WHILE DRILLING;** Michael Thiel, Dzevat Omeragic and Jean Seydoux, Schlumberger
- 5:10 AA **GEOSTEERING IN COMPLEX CHANNEL SANDS: SUCCESSFUL USE OF A NEW HIGH DEFINITION INVERSION OF DEEP RESISTIVITY MEASUREMENTS;** Joseph Wilding-Steele, Alistair Maguire, Ferdinando Perna, Amarjit Bisain, Mirella Caso Salazar, Sigurd Nyboe, Ettore Mirto, Schlumberger; Lisa Draper, Andy Ronald, Jason Scott, Stewart Kirkley, Nandini Nagra, Richard Pattison and Michael Rabinovich, BP
- 5:30 **END OF SESSION**

# Technical Program

TUESDAY - JUNE 18th

## Session 5 – MACHINE LEARNING (AM-1 TOWN CENTER SOUTH)

Co-Chairpersons: Nadege Bize-Forest, Schlumberger &  
Weijun Guo, Halliburton

Reservoir characterization methods that use core or other database inputs and outputs to train model-independent mapping functions for predicting reservoir properties from well logging data (supervised learning) or methods that use pattern recognition or clustering algorithms for quality control of data and/or extraction of useful reservoir information (unsupervised learning).

- 8:00 **BB A DEEP-LEARNING APPROACH FOR BOREHOLE IMAGE INTERPRETATION;** Kinjal Dhar Gupta, Valentina Vallega, Hiren Maniar, Philippe Marza, Hui Xie, Koji Ito and Aria Abubakar, Schlumberger
- 8:20 **CC ROLE OF MACHINE LEARNING IN BUILDING MODELS FOR GAS SATURATION PREDICTION;** Yagna Deepika Oruganti, Peng Yuan, Feyzi Inanc, Yavuz Kadioglu, David Chace, Baker Hughes, A GE Company
- 8:40 **DD QUANTITATIVE INTERPRETATION OF OIL-BASE MUD MICRORESISTIVITY IMAGER VIA ARTIFICIAL NEURAL NETWORKS;** Zikri Bayraktar, Dzevat Omeragic and Yong-Hua Chen, Schlumberger-Doll Research
- 9:00 **EE ENHANCED RESERVOIR GEOSTEERING AND GEOMAPPING FROM REFINED MODELS OF ULTRA-DEEP LWD RESISTIVITY INVERSIONS USING MACHINE-LEARNING ALGORITHMS;** Hsu-Hsiang (Mark) Wu, Li Pan, Jin Ma, Weixin Dong, Yijing Fan, Clint Lozinsky and Michael Bittar, Halliburton



# Technical Program

- 9:20 FF **A MULTI-SCALE PATH FOR THE CHARACTERIZATION OF HETEROGENEOUS KARST CARBONATES: HOW LOG-TO-SEISMIC MACHINE LEARNING CAN OPTIMIZE HYDROCARBON PRODUCTION;** Francesco Bigoni, Marco Pirrone, Fabio Pinelli, Gianluca Trombin and Fabio Vinci, Eni S.p.A.

## Session 6 - FORMATION EVALUATION OF CONVENTIONAL RESERVOIRS II (AM-1 WATERWAY 4)

Co-Chairpersons: John Zhou, Maxwell Dynamics & Clive Sirju, CNOOC Ltd

This session will cover case histories, new and improved technologies in clastics as well as carbonates where fluid type and textural variability influence log response.

- 8:00 GG **A NEW WORKFLOW FOR JOINT INTERPRETATION OF ELECTRICAL RESISTIVITY AND NMR MEASUREMENTS TO SIMULTANEOUSLY ESTIMATE WETTABILITY AND WATER SATURATION;** Chelsea Newgord, Artur Posenato Garcia and Zoya Heidari, The University of Texas at Austin
- 8:20 HH **TEMPERATURE CORRECTION MODELS FOR NMR RELAXATION TIME DISTRIBUTION IN CARBONATE ROCKS;** Gabor Husan and Shouxiang Ma, Saudi Aramco; Wei Shao and Songhua Chen, Halliburton
- 8:40 II **ESTIMATING CAPILLARY PRESSURE FROM NMR MEASUREMENTS USING A PORE-SIZE-DEPENDENT FLUID SUBSTITUTION METHOD;** You Wang, David Medellin and Carlos Torres-Verdín, The University of Texas at Austin
- 9:00 JJ **PORE-SIZE-DEPENDENT FLUID SUBSTITUTION METHOD FOR IMPROVED ESTIMATION OF NMR POROSITY, PERMEABILITY, AND RELAXATION TIMES;** David Medellin, Ali Eghbali, You Wang and Carlos Torres- Verdín, The University of Texas at Austin

# Technical Program

9:20 KK **CORE-LOG-GEOMODEL INTEGRATION: ADVANCED CLASSIFICATION AND PROPAGATION WORKFLOWS FOR THE CONSISTENT, RIGOROUS, AND PRACTICAL UPSCALING OF PETROPHYSICAL PROPERTIES;** Alan A. Curtis and Eric Eslinger, eGAMLS Inc.; Siva Nookala, Cerone Pvt Ltd.

9:40 **Break**

## Session 7- E- POSTERS 2 (Session Time 9:50 AM – 10:30 AM)

Chairpersons: Technology Committee

LL PS1 **TURNING A NEGATIVE INTO A POSITIVE: SHALE ANNULAR BARRIER IDENTIFICATION FOR PLUG AND ABANDONMENT;** David Lavery, Venkat Jambunathan, Halliburton; Gulnara M. Shafikova, Vår Energi AS

MM PS2 **INTEGRATED RESERVOIR CHARACTERIZATION IN DEEPWATER GULF OF MEXICO USING NUCLEAR MAGNETIC RESONANCE (NMR) FACTOR ANALYSIS AND FLUID SUBSTITUTION;** Tianmin Jiang, Jason Gendur, Li Chen, Weixin Xu, Dan Shan, Schlumberger; Tom Hall, Tim Wilkinson, Ben Winkelman, TALOS Energy; Nnadozie Nwosu, Jesus Alberto Cañas and Ron Hayden, Schlumberger

NN PS3 **RECONCILING THE MODELED LOG AND CORE BASED SATURATION HEIGHT FUNCTIONS: A CASE STUDY FROM A GAS-CONDENSATE RESERVOIR;** Suryanarayana Karri, Sproule; Ernesto Pinto and Mateus da Costa, Autoridade Nacional do Petróleo e Minerais – Timor Leste

OO PS4 **THE IMPACT OF PETROPHYSICAL UNCERTAINTY IN FORMATION EVALUATION AND RESERVOIR MODELLING– A ROBUST METHODOLOGY;** Niccolò Ceresa, Michele Arcangeli, Maria Teresa Galli, Paola Cardola and Paolo Scaglioni, ENI SpA

## Technical Program

- PP PS5 DETERMINING RESISTIVITY AND LOW-FREQUENCY DIELECTRIC CONSTANT USING INDUCTION DATA IN THE PRESENCE OF STRONG INDUCED POLARIZATION;** Gong Li Wang, Dean M. Homan, Natalie Uschner-Arroyo, Ping Zhang, Wael Abdallah and Nasar Khan, Schlumberger
- QQ PS6 MICRO/NANOFLUIDIC INSIGHTS ON FLUID DELIVERABILITY CONTROLS IN TIGHT ROCKS;** Ayaz Mehmani, The University of Texas at Austin; Shaina Kelly, ConocoPhillips, and Carlos Torres-Verdín; The University of Texas at Austin
- RR PS7 ADVANCED PETROPHYSICAL APPLICATIONS FOR THE AUSTRALIAN MINING INDUSTRY;** Jennifer Market, Lloyd's Register/MPC Kinetic; Huw Rossiter and Brenton Armitage, MPC Kinetic
- SS PS8 CLASS-BASED MACHINE LEARNING FOR NEXT GENERATION WELLBORE DATA PROCESSING AND INTERPRETATION;** Vikas Jain, Po-Yen Wu, Ridvan Akkurt, Brook Hodenfield, Tianmin Jiang, Yuki Maehara, Vipin Sharma, Aria Abubakar, Schlumberger
- TT PS9 NEW ADVANCED MATERIAL AND COATING TECHNIQUE FOR TRACE HYDROGEN SULFIDE SAMPLING;** Christopher Jones, Jimmy Price, Mickey Pelletier, William Soltmann, Darren Gascooke and Anthony van Zuilekom, Halliburton
- UU PS10 A CONCEPT PLATFORM FOR HIGHLY EFFICIENT AND ACCURATE PRESSURE, SAMPLING AND SIDEWALL CORING OPERATIONS USING WIRELINE CONVEYANCE;** German Garcia, Hadrien Dumont, Vinay K. Mishra, Li Chen, Ron Hayden and Christopher Babin, Schlumberger
- VV PS11 WELLBORE CHARACTERIZATION THROUGH MULTI-DIMENSIONAL VISUALIZATION PROVIDES MECHANICAL**

# Technical Program

**INTEGRITY SURVEILLANCE SOLUTIONS BEYOND THE CURRENT NORM;** Gary Frisch, Phil Fox and Roddy Hebert, Halliburton

**WW PS12 CHARACTERIZATION AND PRODUCTION INFLUENCE OF GEOLOGICAL FACIES IN THE EAGLE FORD;** Bhaskar Sarmah, Nicholas Garrison and Eli Bogle, Halliburton; Katie Ross and Patrick Noon, SM Energy

## Session 8 – FORMATION EVALUATION OF CONVENTIONAL RESERVOIRS III (AM-2 TOWN CENTER SOUTH)

*Sponsored by AkerBP*

Co-Chairpersons: Ferdinanda Pampuri, Eni S.p.A. & E.C. Thomas, Consultant



This session will cover case histories, new technologies and studies in a variety of reservoirs. New rock and fluid classification techniques are introduced and the effect of texture on log response is discussed.

**1:30 FFF IMPROVING PRODUCTIVITY ESTIMATION IN DEVELOPMENT WELLS USING LWD FORMATION TESTERS AND GEOCHEMICAL LOGS;** Ting Li and Chanh Cao Minh, Schlumberger, Xinlei Shi, CNOOC

**1:50 GGG CONNECTIVITY, ASPHALTENE, MOLECULES, ASPHALTENE GRADIENTS AND CO<sub>2</sub> GRADIENTS IN A BRAZILIAN CARBONATE PRESALT FIELD;** Andre C. Bertolini, Jacyra Monteiro, Jesus Alberto Canas, Soraya S. Betancourt, Oliver C. Mullins, Santiago Esteban Colacelli and Ralf K. Polinski, Schlumberger

**2:10 HHH THE FINAL PIECE OF THE PUZZLE: 3-D INVERSION**

# Technical Program

## **OF ULTRA-DEEP AZIMUTHAL RESISTIVITY LWD DATA;**

Nigel Clegg, Timothy Parker and Bronwyn Djefel, Halliburton; Luc Monteilhet, ConocoPhillips; David Marchant, Computational Geosciences Inc.

- 2:30 III **MULTI-FREQUENCY INTERPRETATION OF ELECTRIC RESISTIVITY AND DIELECTRIC PERMITTIVITY MEASUREMENTS FOR SIMULTANEOUS ASSESSMENT OF POROSITY, WATER SATURATION, AND WETTABILITY;** Artur Posenato Garcia, Zoya Heidari and Carlos Torres-Verdín, The University of Texas at Austin

## **Session 9 - COMPLETIONS, RESERVOIR AND PRODUCTION SURVEILLANCE (AM-2 WATERWAY 4)**

Co-Chairpersons: Giuseppe Galli, Eni S.p.A. & Lu Chi, Halliburton

Rock mechanics, completion optimization, case studies and reservoir design using enhanced recovery techniques will be covered.

- 10:40 **BBB EVALUATION OF THE ROCK BRITTLINESS AND TOTAL ORGANIC CARBON OF ORGANIC SHALE USING TRIPLE COMBO;** Anshul Dubey, Selman & Associates Ltd.; Mohamed Ibrahim Mohamed, Colorado School of Mines; Mohamed Salah, Khalda Petroleum; Ahmed Algarhy, Marietta College
- 11:00 **CCC A PETRO-MECHANICAL APPROACH TO COMPLETIONS OPTIMIZATION IN THE BAKKEN;** Carrie Glaser, Fracture ID, Kyle Trainor, NP Energy Services; Joel Mazza, Fracture ID
- 11:20 **DDD NOVEL COUPLING SMART WATER -CO2 FLOODING**

# Technical Program

**FOR SANDSTONE RESERVOIRS; SMART SEAWATER-ALTERNATING- CO2 FLOODING (SMSW-AGF);** Hasan Al-Saedi, Missouri University of Science and Technology/Missan Oil Company; Ralph E. Flori, Missouri University of Science and Technology

11:40 **EEE 'LOG-SOAK-LOG' EXPERIMENT IN TENGIZ FIELD: NOVEL TECHNOLOGY FOR IN SITU IMBIBITION MEASUREMENTS TO SUPPORT AN IMPROVED OIL RECOVERY PROJECT;** Yegor Se, TengizChevroil; Mauricio Villegas, Chevron; Elrad Iskakov and Ted Playton, TengizChevroil; Karl Lindsell and Ernesto Cordova, SPE; Aizhan Turmanbekova, TengizChevroil; Haijing Wang, Chevron

12:00–1:15 **LUNCH (Awards Presentation Luncheon)**

## **Session 10 – FORMATION EVALUATION OF CONVENTIONAL RESERVOIRS IV**

*Sponsored by ConocoPhillips*

Co-Chairpersons: Ferdinanda Pampuri, Eni S.p.A. & E.C. Thomas, Consultant



This session will cover case histories, new technologies and studies in a variety of reservoirs. New rock and fluid classification techniques are introduced and the effect of texture on log response is discussed.

1:30 **FFF IMPROVING PRODUCTIVITY ESTIMATION IN DEVELOPMENT WELLS USING LWD FORMATION TESTERS AND GEOCHEMICAL LOGS;** Ting Li and Chanh Cao Minh, Schlumberger, Xinlei Shi, CNOOC

# Technical Program

- 1:50 **GGG CONNECTIVITY, ASPHALTENE, MOLECULES, ASPHALTENE GRADIENTS AND CO<sub>2</sub> GRADIENTS IN A BRAZILIAN CARBONATE PRESALT FIELD**; Andre C. Bertolini, Jacyra Monteiro, Jesus Alberto Canas, Soraya S. Betancourt, Oliver C. Mullins, Santiago Esteban Colacelli and Ralf K. Polinski, Schlumberger
- 2:10 **HHH THE FINAL PIECE OF THE PUZZLE: 3-D INVERSION OF ULTRA-DEEP AZIMUTHAL RESISTIVITY LWD DATA**; Nigel Clegg, Timothy Parker and Bronwyn Djefel, Halliburton; Luc Monteilhet, ConocoPhillips; David Marchant, Computational Geosciences Inc.
- 2:30 **III MULTI-FREQUENCY INTERPRETATION OF ELECTRIC RESISTIVITY AND DIELECTRIC PERMITTIVITY MEASUREMENTS FOR SIMULTANEOUS ASSESSMENT OF POROSITY, WATER SATURATION, AND WETTABILITY**; Artur Posenato Garcia, Zoya Heidari and Carlos Torres-Verdín, The University of Texas at Austin

## Session 11 – FORMATION EVALUATION OF UNCONVENTIONAL RESERVOIRS I (PM -1 WATERWAY 4)

Co-Chairpersons: Jesús M. Salazar, Marathon Oil & Mehrnoosh Saneifar, Chevron

New technologies, case histories and techniques that are designed for the specific issues faced by operators in tight oil/gas formations and shale-rich formations.

- 1:30 **JJJ THERMAL MATURITY-ADJUSTED LOG INTERPRETATION (TMALI) IN ORGANIC SHALE**; Paul R. Craddock, Schlumberger-Doll Research, Richard E. Lewis, Schlumberger, Jeffrey Miles and Andrew E. Pomerantz, Schlumberger-Doll Research
- 1:50 **KKK RELIABLE MEASUREMENT SATURATION-DEPENDENT RELATIVE PERMEABILITY IN TIGHT ROCK SAMPLES**; Andres

# Technical Program

Gonzalez, Saurabh Tandon and Zoya Heidari, The University of Texas at Austin; Pavel Gramin and German Merletti, BP

2:10 **LLL HIGH-RESOLUTION MINERALOGY MODELING- A CASE STUDY IN THE VACA MUERTA FORMATION, NEUQUÉN BASIN, ARGENTINA;** Hao Zhang, Nora Alarcon and Guillermo Crespo, Baker Hughes, a GE Company; Diego Licitra, YPF; Carlos Fernandez, Chevron LC YPF

2:30 **MMM IMPROVED ANALYSIS OF NMR MEASUREMENTS IN ORGANIC-RICH MUDROCKS THROUGH QUANTIFYING HYDROCARBON-KEROGEN INTERFACIAL RELAXATION MECHANISMS;** Saurabh Tandon and Zoya Heidari, The University of Texas at Austin

2:50 **Break**

## Session 12 - E-POSTERS 3 (Session Time 3:00 PM – 3:40 PM)

Chairpersons: Technology Committee

**NNN PS1 A NEUTRON-INDUCED GAMMA-RAY SPECTROSCOPY LOGGING METHOD FOR DETERMINING FORMATION WATER SALINITY;** Lili Tian, China University of Petroleum; Feng Zhang, China University of Petroleum and Key Laboratory of Deep Oil and Gas; Quanying Zhang, Qian Chen, China University of Petroleum; Xinguang Wang, China University of Petroleum and Key Laboratory of Deep Oil and Gas; Fei Qiu, China University of Petroleum

**OOO PS2 WAVELENGTH-BASED AXIAL RESOLUTION LIMITATIONS OF FLEXURAL WAVE DISPERSION SONIC LOGGING;** Kristoffer Walker, Chevron ETC; Qingtao Sun and Ruijia Wang, Halliburton

**PPP PS3 INTEGRATED RESERVOIR AND SOURCE ROCK**



# Technical Program

## **CHARACTERIZATION: REFINED DOWNHOLE ANALYSES THROUGH ADVANCED SURFACE LOGGING TECHNOLOGY;**

Alessandro Pozzi and Filippo Casali, Geolog; Roselin Ebiakobo-Ngoma-Itoba, TOTAL; Antonio Bonetti, Geolog; Audrey Aymar Nkie-Ndion, TOTAL, Mario Ruggiero, Geolog, Emmanuel Caroli, TOTAL

## **QQQ PS4 INVERSION OF HIGH-RESOLUTION HIGH-QUALITY SONIC COMPRESSIONAL AND SHEAR LOGS FOR UNCONVENTIONAL RESERVOIRS;**

Ting Lei, Smaine Zeroug, Sandip Bose, Romain Prioul and Adam Donald, Schlumberger

## **RRR PS5 QUANTIFYING BITUMEN PLUGGING IN TIGHT GAS**

### **RESERVOIR USING NMR AND PULSED-NEUTRON SPECTROSCOPY LOGGING;**

Azzan Al-Yaarubi, Schlumberger; Khalsa Al-Hadidi, Rinat Lukmanov, Ali Al-Mahrouqi and Marcel Elie, Petroleum Development Oman

## **SSS PS6 CARBONATE LOG INTERPRETATION MODELS BASED ON MACHINE LEARNING TECHNIQUES;**

Wei Shao, Songhua Chen, Mahmoud Eid, Halliburton; Gabor Hursan, Saudi Aramco RDD

## **TTT PS7 LEVERAGING PROBABILISTIC MULTIVARIATE CLUSTERING ANALYSES OF WELL LOGS TO IDENTIFY “SWEET SPOT” INTERVALS IN HETEROGENEOUS CONVENTIONAL AND UNCONVENTIONAL RESERVOIRS;**

Eric Eslinger, Francis Boyle and Alan A. Curtis, eGAMLS Inc.

## **UUU PS8 REAL-TIME DOWNHOLE MID-IR MEASUREMENT OF CARBON DIOXIDE CONTENT;**

Ralph Piazza, Alexandre Vieira and Luiz Alexandre Sacorague, Petrobras; Christopher Jones, Bin Dai, Megan Pearl and Helen Aguiar, Halliburton

## **VVV PS9 WELL DEPTH MEASUREMENT QUALITY IMPROVEMENT:**

# Technical Program

## **QUANTIFYING UNCERTAINTY FOR ALONG-HOLE DEPTH;**

Harald Bolt, Depth Solutions Ltd.

**WWW**

PS10

**FIELD TEST OF A HTHP LATEROLOG-TYPE ARRAY RESISTIVITY AND IMAGING WHILE DRILLING TOOL;** Qiming Li, Ting Lau, Kirk Gee, Jane Kong, Jason Gong, Jeff Aron, James Mather, Oliden Technology, LLC; Anzong Li and Sijia Chen, CNPC

**XXX**

PS11

**FROM THE BOREHOLE WALL INTO THE FORMATION – COMBINING BOREHOLE IMAGES WITH DEEP SHEAR WAVE IMAGING TECHNOLOGY;** Stefan Schimschal, Stephen Fayers, Nicklas Ritzmann and Martin Cox, Baker Hughes, a GE Company; Iain Whyte, Tullow Oil

**YYY**

PS12

**IDENTIFICATION OF BITUMEN IN NAJMAH SOURCE ROCK, UTILIZING ORGANIC AND INORGANIC ANALYSIS, A CASE STUDY;** Jalal Dashti, Kuwait Oil Company; Ahmad Shoeibi, Javad Estarabadi and Antonio Bonetti, Geolog International

3:45

**Break**

## **Session 13 – FORMATION EVALUATION OF UNCONVENTIONAL RESERVOIRS II (PM -2 TOWN CENTER SOUTH)**

Co-Chairpersons: Sap Basu, ConocoPhillips & Jennifer Market, Lloyd's Register

New technologies, case histories and techniques that are designed for the specific issues faced by operators in tight oil/gas formations as well as shale-rich formations. Techniques to better understand rock and fluid parameters are used to make better completion design decisions.

3:50

**ZZZ INVESTIGATION OF PHYSICAL PROPERTIES OF HYDROCARBONS IN UNCONVENTIONAL MUDSTONES USING TWO-DIMENSIONAL NMR RELAXOMETRY;** Z. Harry Xie and Zheng Gan, Core Laboratories L.P.

# Technical Program

- 4:10 **AAAA** **CRUSHED ROCK ANALYSIS WORKFLOW BASED ON ADVANCED FLUID CHARACTERIZATION FOR IMPROVED INTERPRETATION OF ACQUIRED CORE DATA;** Melanie Durand, Anton Nikitin, Adam McMullen, Aidan Blount, Brian Driskill and Amie Hows, Shell
- 4:30 **BBBB** **INTEGRATING PILOT AND LATERAL OPENHOLE MEASUREMENTS FOR LATERAL LANDING POINT ASSESSMENT AND HYDRAULIC FRACTURE DESIGN – A CASE STUDY FROM THE DELAWARE BASIN, WEST TEXAS;** Edgar Velez, Farhan Alimahomed, Elia Haddad, Irina Mikhaltseva, Andrew Dodds, Lance Smith and Jorge Gonzalez, Schlumberger
- 4:50 **CCCC** **LEVERAGING DIGITAL ROCK PHYSICS WORKFLOWS IN UNCONVENTIONAL PETROPHYSICS: A REVIEW OF OPPORTUNITIES, CHALLENGES, AND BENCHMARKING;** Ayaz Mehmani, The University of Texas at Austin; Shaina Kelly, ConocoPhillips, and Carlos Torres-Verdín; The University of Texas at Austin

## Session 14 – NEW BOREHOLE LOGGING TECHNOLOGY II (PM -2 WATERWAY 4)

Co-Chairpersons: Philip Singer, Rice University &  
Geoff Page, Baker Hughes-GE

- 3:50 **DDDD** **CAN THE EVALUATION ACCURACY OF ELEMENTAL CONCENTRATION BE FURTHER ENHANCED IN GEOCHEMICAL LOGGING?—A BREAK ATTEMPT TO OBTAIN PURER INELASTIC GAMMA SPECTRUM;** Chao Yuan, Chaoliu Li and Cancan Zhou, PetroChina Research Institute of Petroleum Exploration and Development; Guoqiang Liu, PetroChina Exploration and Development; Hongliang Wu and Zhou Feng,

# Technical Program

- 4:10  
EEEE PetroChina Research Institute of Petroleum Exploration and Development; Juntao Liu, Lanzhou University  
**ADVANCED LWD OIL-BASED MUD (OBM) IMAGING IN CHALLENGING SUB-SALT DEEPWATER ENVIRONMENTS;** Wilson Pineda, Jennifer Wadsworth, Dann Halverson, Genevive Mathers, and Gerardo Cedillo, BP; Carlos Maeso, David Maggs and Hathairat Watcharophat, Weixin (Wayne) Xu, Schlumberger
- 4:30  
FFFF **FAST BAYESIAN INVERSION METHOD FOR THE GENERALIZED PETROPHYSICAL AND COMPOSITIONAL INTERPRETATION OF MULTIPLE WELL LOGS WITH UNCERTAINTY QUANTIFICATION;** Tianqi Deng, Joaquín Ambí-ora and Carlos Torres-Verdín, University of Texas at Austin
- 4:50  
GGGG **REAL-TIME EM LOOK-AHEAD: A MATURING TECHNOLOGY TO DECREASE DRILLING RISK IN LOW INCLINATION WELLS;** Jean Seydoux, Jean-Michel Denichou, Irlan Amir, Vera Wibowo, Thorsten Bauch, Diogo Salim, Mauro Viandante, Shim Yen Han, Chao Wang, Guillermo Cuadros, Michiko Hamada, Sarwa Tan, Yao Feng Soazig Leveque, Schlumberger
- 5:10 **END OF SESSION**

## WEDNESDAY – JUNE 19TH

### Session 15 – MACHINE LEARNING II

Co-Chairpersons: Nadege Bize-Forest, Schlumberger & Weijun Guo, Halliburton

Reservoir characterization methods that use core or other database inputs and outputs to train model-independent mapping functions for predicting reservoir properties from well logging data (supervised learning) or methods that use pattern recognition or clustering algorithms for quality control of data and/or extraction of useful reservoir information (unsupervised learning).

# Technical Program

- 8:00 **DOMAIN TRANSFER ANALYSIS – A ROBUST NEW METHOD FOR PETROPHYSICAL ANALYSIS;** Ravi Arkalgud, Helio Flare Limited; Andrew McDonald and Derek Crombie, Lloyd's Register  
HHHH
- 8:20 **USING A PHYSICS-DRIVEN DEEP NEURAL NETWORK TO SOLVE INVERSE PROBLEMS FOR LWD AZIMUTHAL RESISTIVITY MEASUREMENTS;** Yuchen Jin, Xuqing Wu and Jiefu Chen, University of Houston, Yueqin Huang, Cyentech Consulting LLC  
IIII
- 8:40 **AUTOMATED RESISTIVITY INVERSION AND FORMATION GEOMETRY DETERMINATION IN HIGH-ANGLE AND HORIZONTAL WELLS USING DEEP LEARNING TECHNIQUES;** Hu Li, Maxwell Dynamics Inc., Gang Liu, Shansen Yang, Ying Guo, He Huang, Mingzong Dai, Yuanshi Tian, CNPC Logging  
JJJJ
- 9:00 **ESTIMATION OF DYNAMIC PETROPHYSICAL PROPERTIES FROM MULTIPLE WELL LOGS USING MACHINE LEARNING AND UNSUPERVISED ROCK CLASSIFICATION;** Mohamed Bennis and Carlos Torres-Verdín, The University of Texas at Austin  
KKKK
- 9:20 **ARTIFICIAL INTELLIGENCE APPLIED TO NMR LOGGING FOR ROCK AND FLUID TYPING IN HEAVY OILS;** Pedro A. Romero Rojas, Alexandrina Cristea and Paul Pavlakos, Weatherford, Okan Ergündüz, Tayfun Keçecioglu and Server Fatih Alpay, ARAR  
LLLL
- 9:45 **Break**

# Technical Program

## Session 16 - E-POSTERS 4 (Session Time 9:55 AM – 10:35 AM)

Chairpersons: Technology Committee

- MMMM** **A NEW PETROPHYSICAL CORRELATION FOR THE**  
PS1 **PERMEABILITY OF CARBONATE ROCKS;** Yuhai Zhou, Ding Zhu  
and A. D. Hill, Texas A&M University
- NNNN** **EXPERIMENTAL ESTIMATION OF RELATIVE**  
PS2 **PERMEABILITIES THROUGH COMPUTED TOMOGRAPHY;**  
Andrés Felipe Ortiz Meneses, Luis Felipe Carillo M., Edwar Hernando  
Herrera Otero, Nicolás Santos Santos and, Universidad Industrial de  
Santander
- OOOO** **DOWNHOLE NEUTRON-INDUCED SPECTROSCOPY**  
PS3 **ELEMENT AND MINERAL ESTIMATES COMPARED TO A**  
**RING TESTED CORE REFERENCE;** Yngve B. Johansen and  
Olav-Magnar Nes, AkerBP, Harish Datir, Schlumberger, Lalitha  
Venkataramanan and Paul R. Craddock, Schlumberger-Doll Research  
Center
- PPPP** **INTEGRATED PETROPHYSICAL INTERPRETATION**  
PS4 **AND WORKFLOW FOR STACKED TIGHT GAS SANDS USING**  
**MODERN EVALUATION TECHNIQUES: NORTH LOUISIANA**  
**MULTIWELL CASE STUDY;** Rojelio Medina, Halliburton; Luke  
Fidler, Range Resources; Nick Garrison, Bhaskar Sarmah and John  
Quirein, Halliburton
- RRRR** **AUTO-NAVIGATION OF OPTIMAL FORMATION**  
PS6 **PRESSURE TESTING LOCATIONS BY MACHINE LEARNING**  
**METHODS;** Bin Dai, Christopher Jones, James Price and Anthony  
van Zuilekom, Halliburton
- SSSS** **AUTOMATIC INTERPRETATION OF WELL LOGS**  
PS7 **WITH LITHOLOGY-SPECIFIC DEEP-LEARNING METHODS;**  
Aymeric-Pierre Peyret, Joaquín Ambía and Carlos Torres-Verdín, The

# Technical Program

University of Texas at Austin; Joachim Strobel, Wintershall GmbH

**TTTT** **A NEW THROUGH-CASING ACOUSTIC LOGGING**  
PS8 **TOOL USING DUAL-SOURCE TRANSMITTERS;** Xiaoming Tang  
and Yuanda Su, China University of Petroleum (East); Bo Zhang,  
Shuoren Times Technology

**UUUU** **MONITORING CO<sub>2</sub> SATURATION USING THREE-**  
PS9 **DETECTOR PNC LOGGING TECHNIQUE FOR CO<sub>2</sub> EOR IN**  
**HEAVY OIL RESERVOIR;** Feng Zhang, China University of  
Petroleum and Key Laboratory of Deep Oil and Gas; Quanying  
Zhang and Lili Tian, China University of Petroleum; Xiaoyang Zhang,  
Qingdao University of Science and Technology; Qian Chen and Jilin  
Fan, China University of Petroleum

**VVVV** **DEDUCTING DISPERSIVE PERMITTIVITY FROM**  
PS10 **LWD RESISTIVITY MEASUREMENTS;** Stein Ottar Stalheim,  
Equinor

**WWWW** **CEMENT BOND EVALUATION WITH A LOGGING-**  
PS11 **WHILE-DRILLING SONIC TOOL;** Ruijia Wang, Chung Chang,  
Richard Coates, Jonathan Lee and Franck Michel, Halliburton;  
Morgan Halbert and Jeremy McCaslin, Shell Offshore

10:40 **Break**

## Session 17 – CASE STUDIES

Co-Chairpersons: Giuseppe Galli, Eni S.p.A. & Iulian Hulea, Shell

Case studies and the results of new techniques and models will be compared with actual results.

10:45 **UNCERTAINTY ANALYSIS IN FORMATION**

# Technical Program

- XXXX**    **EVALUATION: RATIONALE, METHODS AND EXAMPLES;**  
Philippe Gaillot, Jerome Lewandowski and Roza Nursaidova,  
ExxonMobil
- 11:05  
**YYYY**    **LWD RESISTIVITY ANOMALIES IN OVERBURDEN  
SECTIONS PROVIDE CRITICAL INFORMATION ON DRILLING  
SAFETY AND BOREHOLE STABILITY: GULF OF MEXICO  
CASE STUDIES;** Michael Rabinovich, John Bergeron, Gerardo  
Cedillo, Maryam Mousavi, Wilson Pineda, Eric Soza, BP; Jeffry  
Hamman, BP Retired; Fei Le, Hans-Martin Maurer, Baker Hughes a  
GE Company; Ettore Mirto, Keli Sun, Schlumberger
- 11:25  
**ZZZZ**    **ESTIMATION OF THOMSEN'S EPSILON AND  
DELTA IN A SINGLE CORE USING ULTRASONIC PHASE AND  
GROUP VELOCITY MEASUREMENTS;** Gabriel Gallardo-Giozza,  
D. Nicolás Espinoza and Carlos Torres-Verdín, The University of  
Texas at Austin; Elsa Maalouf, American University of Beirut
- 11:45  
**AAAAA**    **IMAGING, HIGH RESISTIVITY CARBONATE  
RESERVOIR DELINEATION AND WELL PLACEMENT –  
APPLICATION OF A NEW HTHP RESISTIVITY IMAGING WHILE  
DRILLING TOOL IN CHINA;** Anzong Li, Chuanwei Li, Sijia Chen,  
Jun Zhu, Gang Chen, Zunbo Geng, China Petroleum Logging Co.Ltd;  
Qiming Li, Oliden Technology
- 12:05 – 1:20            **LUNCH (Leadership Luncheon)**

## Session 18 – CONVENTIONAL AND NEW TECHNOLOGY

Co-Chairpersons: Ron Deady, APS Technology &  
John Zhou, Maxwell Dynamics

This session will cover case histories, new technologies and studies in clastics as well as carbonates covering low contrast pay, thin beds, fresh formation water etc.



# Technical Program

- 1:30 **BBBBB NMR MEASUREMENT OF POROSITY AND DENSITY FROM DRILL CUTTING OF UNCONVENTIONAL TIGHT RESERVOIRS;** Stacey M. Althaus, Jin-Hong Chen and Jilin Zhang, Aramco Services Company
- 1:50 **CCCCC PETROPHYSICAL EVALUATION OF THINLY-LAMINATED DEPOSITIONAL SEQUENCES USING STATISTICAL MATCHING PROCEDURES;** David Gonzalez, Joaquín Ambía and Carlos Torres-Verdín, The University of Texas at Austin
- 2:10 **DDDDD APPLICATION OF AN INTEGRATED PETROPHYSICAL MODELING TO IMPROVE LOG-BASED RESERVOIR CHARACTERIZATION AND OIL IN-PLACE ESTIMATE OF A FRESH WATER SHALY SAND RESERVOIR;** Sushanta Bose, WD Von Gonten & Company; Michael T. Myers, Peila Chen and Ganesh C. Thakur, University of Houston
- 2:30 **EEEE E EXPERIMENTAL INVESTIGATION OF MUD-FILTRATE INVASION USING RAPID MICRO-CT IMAGING;** Colin Schroeder and Carlos Torres-Verdín, The University of Texas at Austin
- 2:50 **Break**

## Session 19 – NEW BOREHOLE LOGGING TECHNOLOGY III

Co-Chairpersons: Mehrnoosh Saneifar, Chevron & Geoff Page, Baker Hughes-GE

In this session we will present advances in resistivity, nuclear and sonic tool response. Data analysis techniques and their applications we be covered.

- 3:10 **FFFFF PRE-JOB PLANNING BASED ON NUCLEAR MODELING LEADS TO SUCCESSFUL DOWNHOLE MINERALOGY DETERMINATION IN EXTREMELY**

## Technical Program

- 3:30 **CHALLENGING LOGGING CONDITIONS;** Haijing Wang, Lorelea Samano, Kenneth D. Kelsch, Ela Manuel and Janet Yun, Chevron
- GGGGG FROM HOUSTON API CALIBRATION PITS... TO**  
**ARTIGUELOUTAN LOGGING METROLOGICAL FACILITY;** Pierre Chuilon, Gilles Puyou and Emmanuel Caroli, TOTAL SA, Thibaud Vandamme, Modis; José Inciarte, Maciej Kozłowski and Bill Dillon, Halliburton
- 3:50 **INTEGRATED RESERVOIR FLUID MAPPING WHILE**  
**HHHHH DRILLING ALONG HIGH-ANGLE-HORIZONTAL WELLS;** Maria Cecilia Bravo, Mirza Hassan Baig, Schlumberger; Artur Kotwicki and Nicolas Gueze, AkerBP ASA, Mathias Horstmann, Yon Blanco, Chanh Cao Minh, Julian Pop and Scott Paul, Schlumberger
- 4:10 **IIIII PSEUDO-FOCUSING PROCESSING OF ARRAY INDUCTION**  
**LOGGING MEASUREMENTS IN HIGH-ANGLE WELLS;** Hu Li, Maxwell Dynamics, Inc, Chao Yuan, Chaoliu Li, Xia Li, Cancan Zhou, PetroChina Research Institute of Petroleum Exploration & Development, John Zhou, Maxwell Dynamics, Inc.
- 4:30 **RESOLUTION ENHANCEMENT OF SONIC LOGS**  
**JJJJJ SUPPORTED BY ULTRASONIC DATA;** Jingxuan Liu, Ali Eghbali and Carlos Torres-Verdín, The University of Texas at Austin
- 4:50 **Closing Remarks and Door Prize Winner**
- 5:00 **END OF 60th ANNUAL SYMPOSIUM**

# Field Trip - Modern Galveston Island and the Brazos River Delta as Reservoir Analogs

Date: **Saturday, June 15, 2019**

Time: 8:00 a.m. - 6:00 p.m.

Fee: Professionals: \$150 and Students: \$75 (Limited)

Limit: 30 People

Includes: Ground transportation, lunch, refreshments and guidebook.

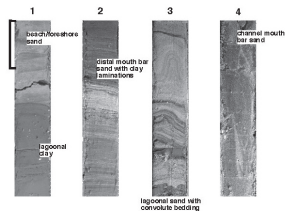
**Leader:** Julia Smith Wellner, PhD

**Notes:** Day time temperatures in June in south Texas are typically more than 90 degrees Fahrenheit. Care should be taken to limit sun exposure including the use of a wide-brimmed hat and long pants/sleeves as well as sunblock.

## About the Eagle Ford Formation



Deltas have proved to be important oil and gas provinces on a global scale. Deltas are the point sources from which sediment is introduced onto continental shelves and ultimately into deep water basins. The interaction of fluvial and receiving basin processes results in the juxtaposition of reservoir, source and seal facies. Major accumulations of hydrocarbons occur in the deltaic deposits of nearly all of the world's great river systems. Understanding the distribution of reservoir and seal facies in these systems will facilitate successful exploration in these settings.



### Who Should Attend

Geoscientists, petrophysicists, and engineers actively exploring in deltaic and coastal/barrier island settings.

# Field Trip - Modern Galveston Island and the Brazos River Delta as Reservoir Analogs

## Objectives

To see typical vertical and lateral facies associations in fluvial, deltaic and barrier island sedimentary successions. Fluvial processes dominate on the upper delta plane, whereas the lower delta plain is subject to marine influence. Delta fronts comprise nested complexes of distributary channels, mouth bars, tidal bars, and reworked delta-front sediments. Learn to recognize these facies types and how depositional processes influence reservoir properties (primary mineralogy and particle size distributions).

## About the Instructor:

Julia Wellner earned her Ph.D. in 2001 in geology and geophysics from Rice University, where she also completed a post-doctoral fellowship. She is a marine geologist who works primarily offshore Antarctica on questions related to the sedimentary record of glacial variability, climate history, and sea-level change. She and her students also work in the Gulf of Mexico, examining details of recent stratigraphic units as analogs for petroleum reservoirs and on coastal response to sea-level rise.

## Society Functions / Social Events

### STUDENT PAPER COMPETITION

Date: **Sunday, June 16**

Place: Waterway 7

Time: 8:00 a.m. - 5:00 p.m.

This event will allow students competing to engage with colleagues from other schools and industry professionals. Graduate and undergraduate students will share their work and research for the opportunity of being awarded “best paper presentation”. The competition will be held in three groups: Bachelor, MSc and PhD.

### SPWLA ANNUAL BUSINESS MEETING AND LUNCH

Date: **Monday, June 17**

Place: Montgomery Ballroom.

Time: 12:00 p.m. - 1:10 p.m.

Fee: \$45

The SPWLA Annual Business Meeting is a lunch meeting open to all delegate attendees. During this lunch the 2018-2019 President and Board Members will share the accomplishments made during their tenure. Followed by the introduction and welcoming of the 2019-2020 President and Board Members.

### SPWLA AWARDS PRESENTATION AND LUNCH

Date: **Tuesday, June 18**

Place: Montgomery Ballroom

Time: 12:00 p.m. - 1:15 p.m.

Fee: \$45

The Annual Awards luncheon is open to all symposium delegates, their

## Society Functions / Social Events

spouses and guest. During the lunch, individuals will be honoured and rewarded for their outstanding achievements and contributions to the Society and the industry.

### SPWLA LEADERSHIP LUNCH\*

Date: **Wednesday, June 19**

Place: Waterway 2

Time: 12:05 p.m. - 1:20 p.m.

\*All current SPWLA Chapter Presidents (outgoing and incoming), SPWLA Parent, Past and Present Presidents, SPWLA Parent Regional Directors and SIG coordinators are invited to join this luncheon.

### Nuclear SIG Meeting

Date: **Sunday, June 16**

Place: Marriot Waterway 3, *The Woodlands, Texas*

Time: 5:00 p.m. - 6:00 p.m.

### Education SIG Meeting

Date: **Wednesday, June 19**

Place: Marriot Waterway 2, *The Woodlands, Texas*

Time: 5:30 p.m. - 6:30 p.m.

### PDDA SIG Meeting

Date: **Thursday, June 20**

Place: Anadarko Corporation Headquarter, *The Woodlands, Texas*

### NMR SIG Meeting

Date: **Thursday, June 20**

Place: Southwest Energy Complex, *Spring, Texas*

## Society Functions / Social Events

### EVENING RECEPTIONS

*You are invited to spend your evenings while at SPWLA 2019 at receptions proudly hosted by our sponsors. We thank our loyal sponsors for their generous contributions and hospitality during our program.*

### ICEREAKEER RECEPTION

Date: **Sunday, June 16**

Time: 6:30 p.m. – 8:30 p.m.

Place: The Westin at The Woodlands

Fee: Complimentary (This event is full, no tickets available)

Hosted by **HALLIBURTON**

Join your colleagues at the Halliburton Ice Breaker event on Sunday night. Catch up with old friends and mingle with new ones as we celebrate the first evening of the symposium. Within walking distance to the Marriott, the venue is convenient to all. Serving Cocktails and hors d'oeuvres.

### MONDAY EVENING SOCIAL

Date: **Monday, June 17**

Time: 6:00 p.m. – 9:30 p.m.

Place: Haras Hacienda

Fee: Complimentary (This event is full, no tickets available)

Hosted by **Baker Hughes, a GE company**

Howdy, ya'll!

Nothing says "Texas" better than live music, good food and wide open spaces!

Please join Baker Hughes, a GE company, for an evening of fun at our "Social A-Fair" on the sprawling grounds of Haras Hacienda – a premier Lusitano breeding farm and horse show venue.



The county fair-themed event will feature country music, a horse show, and

## Society Functions / Social Events

all kinds of games of skill and chance worthy of bragging rights as big as Texas!

Who could say “no” to the tallest and coldest drinks this side of the Rio Grande, and the lip-smackingest food on four wheels served by the many food truck vendors on hand.

We'll provide transportation. Meet at 6:00 p.m. at the front entrance of the Marriott hotel where busses will leave at staggering times and return in staggering order as well. All busses will return to the hotel by 9:30 pm. If you are going by car, stop by our booth to pick up a map with the directions.

### TUESDAY EVENING SOCIAL

Date: **Tuesday, June 18**

Time: 6:30 p.m. – 9:00 p.m.

Place: Event Center at the Cynthia Woods Mitchell Pavilion

Fee: Complimentary (This event is full, no tickets available)

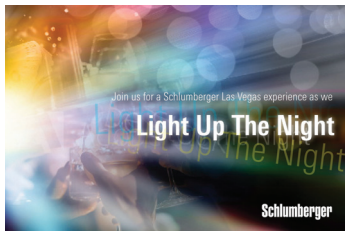
**Hosted by Schlumberger**

#### **We've saved the best for last!**

Join us for a show-stopping Schlumberger-style Las Vegas experience, as we Light Up the Night for SPWLA's most electric social!

Take a quick walk from the Marriott to experience casino games, a magical light show, astounding performers, and more. Eat, drink, and play Vegas-style table games for a chance to win a prize.

***This is a night  
you don't want to miss!***





# Spouse/Guest Program

## SPOUSE/GUEST HOSPITALITY SUITE

Date: **Monday – Wednesday**

Time 8:00 a.m. – 5:00 p.m.

Place: Cochran's Crossing

Fee: \$90.00

A comfortable place to hang out, meet with friends, or plan the day's activities. Light snacks and refreshments will be available in the suite. Our Hospitality suite will be available to all registered spouse/guests. This is a place for you to relax while the conference is in progress.

## SPOUSE/GUEST TOURS

Date: **Monday, June 17, 2019**

Time 1:00 p.m. – 5:00 p.m. (Depart from Cochran's Crossing)

Place: Afternoon Shopping Tour to Market Street in a Trolley

Fee: \$0.00

Kick off the conference proceedings by attending Shopping Tour to Market Street.

Market Street is a shopping area made to look like an old town square. Everything is available here including food, entertainment, clothing stores and many specialty shops. The center often has events or bands playing. There is a high-end hotel on the loop and an HEB grocery store across the parking lot. If you are visiting The Woodlands, it is worth a visit to the Market Street shops. This activity will help you familiarize with all things to do in the Woodlands area. Discover all the great dining and shopping activities, which are within minutes away from the symposium hotel.



# Spouse/Guest Program

## TUESDAY - OUT AND ABOUT

Date: **Tuesday, June 18, 2019**

Time: 7:00 a.m. – 5:00 p.m. (Departs from Town Center Foyer)

Place: Tour to the Blue Bell Creamery & Bush Presidential Museum

Fee: \$80 (adults) and \$50 (Children).

Includes lunch at Café Eccell in College Station, Texas and Ice Cream at Blue Bell.



Begin an exciting day of excursion with a tour to Blue Bell Ice cream production facility in Brenham, Texas. Famous for making ice cream the “old-fashioned way”, its secret family recipe has been enhanced for over 100 years. A guided tour followed by a short video about how the ice cream is made will conclude with a taste test.

Then, you will be treated with a Blue Bell ice cream of your choice (two scoops) to taste their delicious samples. Afterwards we will visit the Museum at the George Herbert Walker Bush Presidential Museum and Library. The core exhibit at the Museum traced the life of George H.W. Bush from his childhood during the 1920's as a torpedo bomber pilot during World War II, a U.S. Congressman, Ambassador to the United Nations, Director of the Central Intelligence Agency(CIA), Vice President and Finally as the President of United States from 1989-1993. The museum is an interactive experience with a concurrent program for children. Experience the White House Situation Room, see actual spy equipment used by CIA agents during that time, or test the flight simulator of a replica WWII aircraft. A special exhibit of NASA's Space program, the International Space Station and the Space Shuttle will provide an opportunity to interact with original shuttle equipment and a simulator. You can even have your picture take in the Oval office! A recorded self-guided tour with guides posted at each exhibit will be available.



# Spouse/Guest Program

## WEDNESDAY - CHOCOLATE EXPERIENCE

Date: **Wednesday, June 19, 2019**

Time 10:00 a.m. – 5:00 p.m. (Departs from Cochran's Crossing)

Place: Chocolate and Wine Pairing with Winery Visit

Fee: \$85 (Includes transportation, food, chocolate and wine).

You will start the day with brunch at Chocolate Passion, a Venezuelan chocolatier using fine and rare Criollo chocolate located in Conroe.

Chocolate connoisseurs seek for Venezuelan organic cacao for its flavor, tasting notes, texture, smoothness on the palate and finish. This visit will include a chocolate presentation and wine pairing. Brunch will include a glass of wine or other beverage of your choice and coffee. Then board the bus to go to the beautiful Tuscan-style award-winning Bernhardt winery located in Plantersville, for sumptuous wine tasting and a tour with the proprietor.



## Awardees

### DISTINGUISHED TECHNICAL ACHIEVEMENT

#### SONGHUA CHEN



**Songhua Chen** currently is Sr. Manager of NMR Sensor Physics Discipline at Halliburton. Since joining Halliburton 8 years ago, he has been leading a team of scientists and mathematicians to research and design new wireline XMR and LWD MRIL sensors, as well as to optimize NMR data acquisition, processing, and interpretation methodologies. Most recently, his interest focuses on carbonate pore typing and unconventional reservoir fluid identification. Prior to joining Halliburton, he was with Baker Hughes for 15 years as a staff scientist and NMR Interpretation Project

Leader, and later became Sr. Manager of Integrated Interpretation group to develop technologies involving NMR, geochemistry, fluid sampling/testing interpretations, and pore scale modeling. Prior to working in the energy service industry, he was a Sr. Scientist at Texas A&M University. Songhua holds a B.S. in Physics from Southeast University, Nanjing, China, and a PhD in Physics from University of Utah, Salt Lake City.

Songhua is an inventor or co-inventor of 56 U.S. patents in NMR downhole sensors, data processing and analytics, inversion, core analysis, and integrated petrophysics. He authored or coauthored 98 publications including 1 book chapter, 30 peer-reviewed journal papers, and 67 conference proceedings. He has been an active member of SPWLA, SPE, and past member of American Physical Society, SEG, and SCA. He has co-chaired two SPWLA NMR topical conferences and served once in SPWLA Technology committee. He was selected twice SPWLA Distinguished Speaker in 2006 and 2013, respectively.

# Awardees

## DISTINGUISHED TECHNICAL ACHIEVEMENT

### AHMED BADRUZZAMAN



**Ahmed Badruzzaman** has sought to understand physics basics in complex nuclear systems, from novel fission reactors to inertial confinement fusion to downhole logging, during a nearly 40-yr R&D journey through Chevron, Sandia National Laboratories, Schlumberger-Doll and Babcock & Wilcox, and teaching at University of California, Berkeley. An early practitioner/developer of simulation techniques, it has been Ahmed's modus operandi in research throughout. He is currently an SME consultant to US Department of Energy on alternatives to radionuclide-based logging tools to mitigate source risks. His interest in alternatives began in early 1980's, at Schlumberger-Doll,

where he studied response of an experimental LINAC density tool. He helped develop Chevron's in-house Source Handling Guideline, prepare IAEA's draft logging source safety guide, and revise Vienna-based WINS' Best Practice Guide on logging source security. He was an official reviewer of US National Academy of Sciences' 2008 report to Congress, "Radiation Source Use and Replacement."

During 20+ years in Chevron, Ahmed studied advanced tools (LWD and C/O-PNC) in difficult-to-calibrate wellbore conditions, developed novel algorithms in complex formations, proposed advanced logging measurement concepts, and studied high-temp gas reactors for unconventional resource recovery. His theory-based three-phase C/O-to-So equation, termed as 'Badruzzaman correction' by a service company colleague, has been used in California and Indonesia steam floods, to accurately locate several hundred million barrels of previously unaccessed reserves. He developed the first multiple-detector PN tool concept leading to a 1998 patent on a through-casing inelastic n-gamma density (INGD), and a 2004 SPE paper on multiple parameters from such a tool. Now an independent researcher, he recently revisited basics of INGD concept and generators as alternatives to Am-Be sources for neutron porosity.

## Awardees

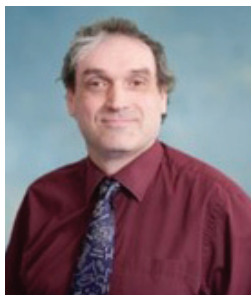
Author of 45+ papers, two US patents, and an upcoming textbook on Nuclear Logging, Ahmed is a Fellow of American Nuclear Society, a two-time SPE Distinguished Lecturer, a two-time SPWLA Distinguished Speaker, a former editor of *Petrophysics*, and founder-chair of SPWLA Nuclear SIG.

Avid proponent of mentoring the next generation, Ahmed offered a graduate course, *Subsurface Nuclear Technology*, at UC Berkeley during 2001-2007. He now co-teaches Berkeley's Big Ideas Course, *Energy and Civilization*. Ahmed holds PhD in Nuclear Engineering and Science from Rensselaer Polytechnic Institute, Troy, NY.

# Awardees

## DISTINGUISHED TECHNICAL ACHIEVEMENT

### GEOFF PAGE



**Geoffrey Page** studied physics at the Royal College of Science in London. He began his oil-field career as a Dresser Atlas wireline engineer in France in 1980, during which time he logged some wells in Pechelbronn in North East France – the home of logging! In 1988 after a spell working offshore in the North Sea he was transferred to Aberdeen “for 1-2 years” as the North Sea Geoscience manager, moved into Petrophysics, and is now Region Petrophysics Advisor and global subject matter expert (SME) for BHGE still based in Aberdeen after over 30 years! He is a former President of the Aberdeen chapter of the SPWLA (AFES) and was honoured with a “life

membership”. He has written and presented many papers, and been a silent contributor on many more, helped organise many of the global conferences, for both SPWLA and other professional societies, including SPWLA 2008 in Edinburgh and London 2018.

In 1988 two other projects also started which have come together: Aberdeen University asked if they could come and visit the operational wireline base to view the logging equipment as part of the new, now very successful, Integrated Petroleum Geoscience (IPG) Msc course. Around the same time some of the support services managers in his company asked if they could be taught a bit more about exactly what the company did – a course that became known as “Logging for Accountants”. Putting these together merged into an introductory Petrophysics course that has been given to around 500 IPG students, and is part of the Msc qualification. This and other logging technology courses, have also been presented to another 500+ industry professionals. For many of them this was this first time they had encountered “Petrophysics” and were inspired to now be seasoned Petrophysicists in their own right.

Geoff now spends a large part of his time teaching and mentoring both within his own company, BHGE, and externally, to help introduce old and new technology services to colleagues and customers, as well as helping to push the frontiers of Petrophysics forward in new areas such as geothermal.

# Awardees

## DISTINGUISHED SERVICE

### TEGWYN PERKINS



**Tegwyn J. Perkins** has been with Lloyd's Register (LR) for eight years and currently serves as a Principal Technical Advisor where he has overall responsibility for all technical activities in The Americas. Tegwyn has almost thirty years in the industry: before LR he spent fourteen years with Halliburton where he served in various formation evaluation and managerial software positions and previously he worked for both Z&S Consultants and Intera/Exploration Consultants Ltd.

Tegwyn earned his doctorate degree in Applied Mathematics and Numerical Methods from University of Wales, Aberystwyth and his post-doctoral study on the "Carrying Capacity of Drilling Fluids" from University of Plymouth, England was sponsored by BP. His undergraduate studies were also carried out at University of Wales, Aberystwyth.

He has co-authored 13 papers on various aspects of petrophysics and formation evaluation and his current technical interests include Borehole Imaging, Geosteering and Machine Learning.

He is proud to have served as the 2009-2011 and 2013-2015 VP-Information Technology as well as on various Symposia, Education and IT committees over the years. Currently, he is the webmaster for SPWLA2019.com and the Aberdeen Formation Evaluation Society and maintains the Curve and Tool Mnemonics database for SPWLA.org (20,000 entries and counting!).

Tegwyn has twice replaced the abstract submission and review program! The current system was successfully used for the 2019 Symposium and is also available for other SPWLA meetings and conferences.

On a personal note, Tegwyn is an avid sports enthusiast who manages (and plays for) his own amateur football team. He also enjoys rugby, orienteering, badminton and golf.



## Awardees

### MERITORIOUS SERVICE

#### CHICHENG XU



**Chicheng Xu** obtained his bachelor's degree in Physics from the University of Science and Technology of China in 2002, and master's degree in Physics from the Chinese University of Hong Kong in 2004. After working for more than four years for Schlumberger Beijing Geoscience Center as a petrophysics software engineer, he continued his education with the Formation Evaluation & Petrophysics consortium at the Petroleum & Geosystems Engineering Department of UT Austin in 2009. He was awarded a PhD in Petroleum Engineering in 2013. During his PhD research, he developed a series of novel petrophysical

rock typing methods and workflows with multi-scale subsurface data and published more than 20 technical papers. From 2013 to 2017, he worked as a petrophysicist/rock physicist for BP America and BHP Billiton to support US asset operations and reservoir characterization in deepwater turbidite fields as well as onshore unconventional fields. Chicheng is currently working as a research petrophysicist and project leader in Aramco Houston Research Center. His research focus is on petrophysical reservoir characterization using advanced computational techniques and data analytics for interpretation, classification, and modeling based on multi-scale subsurface data integration. Chicheng Xu has been actively contributing to professional societies such as SPWLA, SPE, and SEG since his PhD years. He served on the SPE Reservoir Description and Dynamics committee (2016 - 2018) and the Formation Evaluation subcommittee of SPE ATCE (2015 - 2019). He is an associate editor of the Interpretation Journal (copublished by SEG and AAPG), the Petrophysics Journal, and SPE REE Journal. During his editorial tenure, Chicheng has led publication of several special issues on the cutting-edge petrophysics research topics such as Facies Classification/Rock Typing and Petrophysics Data-Driven Analytics (PDDA). He is chairing the SPWLA PDDA SIG and was selected to receive the regional Formation Evaluation technical award by SPE - Gulf Coast in 2018.

## Awardees

### MERITORIOUS SERVICE

#### IRINA BOROVSKAYA



**Irina Borovskaya** is the founder of Iblytics LLC, a boutique consulting firm focusing on strategic data driven decisions. Previously she worked in ConocoPhillips in Lower48 Unconventional plays assets, leading teams and projects; and prior - in Schlumberger, where she held various positions in research, consulting and operations while working in the US, Russia and Brazil with Data and Consulting Services, R&D and Drilling and Measurements Segment.

Ms. Borovskaya received her PhD in Mathematical Modelling, BSc and MSc in Applied Mathematics and Physics from the Moscow Institute of Physics and Technology, Russia. She is now pursuing her MBA at the University of Chicago Booth School of Business.

Irina Borovskaya served at the SPWLA Brazil Chapter Board (2012-2013). Ms. Borovskaya has been on the Board of Directors of Houston Chapter of SPWLA as Editor, Treasurer and President (2014-2018). She also served on boards for the SPE NYNE Petroleum and the SPE Brasil Sections (2010-2013). Irina Borovskaya has 18 publications on petrophysics, stochastic modeling and aeroacoustics.

Irina Borovskaya has more than 15 years of upstream oil and gas experience in conventional and unconventional assets, in onshore and offshore environments during exploration, appraisal and development phases. Ms Borovskaya is the founder of Iblytics LLC, a boutique consulting firm focusing on helping clients with their strategic data driven decisions. Prior to founding Iblytics LLC she worked in ConocoPhillips in Lower48 Unconventional plays during appraisal and development stages for DJ basin and Eagle Ford, leading teams and projects. She has also worked in Schlumberger and held various positions in research, consulting and operations while working in the United States,

## Awardees

Russia and Brazil with Data and Consulting Services and the Drilling and Measurements Segment.

Ms Borovskaya has BSc and MSc degrees in applied mathematics and physics and PhD in mathematical modelling from Moscow Institute of Physics and Technology, Russia. She is an MBA Candidate at the University of Chicago Booth School of Business. Irina Borovskaya is an active member of SPE and the Society of Petrophysicists and Well Log Analysts (SPWLA), she has been President of the Board of Directors of the Houston Chapter of SPWLA 2016-2018.

# Awardees

## 2018-2019 OUTSTANDING SPWLA PROFESSIONAL CHAPTER

### LONDON PETROPHYSICAL SOCIETY, THE LONDON CHAPTER OF SPWLA

The LPS is a registered charity that exists to promote, for the public benefit, education and knowledge in the scientific and technical aspects of formation evaluation. We do this through a regular series of evening technical meetings and topical one-day seminars, and through our Newsletter.

We provide educational support through the Ian Hillier University bursary and grants scheme, and other educational support, such as matching Universities with Industry donors of data for research, and student travel expenses to our events.

We are a thriving chapter with over 300 members. Our first meeting was held on 15th March 1973 under the presidency of Pip Threadgold after the SPWLA granted formation of the local chapter earlier that year on 25th January 1973. André Poupon of Schlumberger was the speaker with the title “Logging – past present and future”.

The LPS holds its evening meetings and its seminars in the historic and beautiful Geological Society buildings, in Piccadilly, London. The LPS hosted the SPWLA Annual Symposia in 1987 and 2018, and hosted European symposia in 1983 and 2002. We also hosted the seminar that led to the definitive “Russian Style Formation Evaluation” book edited by Bob Harrison.

LPS is very proud to be awarded the “Outstanding Chapter Award” 2019. Thanks to all the committee involved in the LPS in recent years and in the London Symposium committee for all their hard work.

# Awardees

## 2018-2019 OUTSTANDING SPWLA STUDENT CHAPTER

### THE UNIVERSITY OF TEXAS AT AUSTIN

The Student Chapter of SPWLA at The University of Texas at Austin has consistently and frequently organized a significant number of events to highlight and disseminate petrophysics and formation evaluation activities among students, academics, and local professionals. Our events have emphasized the importance of formation evaluation practices in the description and production of hydrocarbon reservoirs around the world. Furthermore, we have successfully reached out to the geosciences and engineering communities to inform them about our profession and our technical challenges. We are planting the seeds of future formation evaluation specialists who will eventually enrich and command the SPWLA. As a result, a great number of UT Austin students is seriously considering the profession of formation evaluation as their technical career. Below is a summary of the major chapter events and achievements that took place between March 2018 and March 2019:

- **Events**

- The chapter hosted nine technical events, including presentations by two current SPWLA Distinguished Speakers, two SPWLA Regional Speakers and the SPWLA President-Elect, Jesus Salazar.
- The Chapter participated in three additional outreach events at The University of Texas at Austin. At these events, Chapter members led approximately 800 hands-on demonstrations that taught elementary, middle, and high school students basic concepts related to petrophysics, petroleum engineering, and geological sciences.

- **Annual Symposium Involvement**

- Two of the Chapter's nominees for the Student Paper Contest placed 1st in their respective divisions. Michael Wang earned 1st place in the Bachelor's division and Runqi Han earned 1st place in the PhD division. This was the second consecutive year UT won first places in both divisions.
- Artur Posenato Garcia, President of the Student Chapter of SPWLA at UT-Austin, was named a 2018-2019 SPWLA Distinguished Speaker for the second year in a row. Additionally, Chapter member Chelsea Newgord received the designation of 2018-2019 SPWLA Distinguished Speaker.

## Awardees

- **Social Media**

- o The SPWLA at UT-Austin Facebook page currently has over 1,100 followers and the recent creation of the Chapter's LinkedIn profile helped to strengthen our social media presence.

The Student Chapter of SPWLA at The University of Texas at Austin is very proud to receive the Outstanding Student Chapter Award at the Annual Symposium for the second consecutive year.

# Awardees

## **BEST OF PETROPHYSICS PAPER 2018**

***“Improving Dielectric Interpretation by Calibrating Matrix Permittivity and Solving Dielectric Mixing Laws With a New Graphical Method1”***

Haijing Wang, Hanming Wang, Emmanuel Toumelin, Ronald L. Brown,  
and Luisa Crousse

## **SYMPOSIUM BEST PAPER PRESENTATION 2018**

***“A REVOLUTIONARY X-RAY TOOL FOR TRUE SOURCELESS DENSITY LOGGING WITH SUPERIOR PERFORMANCE”***

Avto Tkabladze, Matthieu Simon  
London, United Kingdom

## **SYMPOSIUM BEST E-POSTER PRESENTATION 2018**

***“BOREHOLE ACOUSTIC IMAGING USING 3D STC AND RAY TRACING TO DETERMINE FAR-FIELD REFLECTOR DIP AND AZIMUTH”***

Nicholas Bennett  
London, United Kingdom

# Awardees

## **DISTINGUISHED SPEAKERS 2018-2019**

Matthieu Simon  
Avto Tkabladze  
Nicholas Bennett  
Artur Posenato Garcia  
Chelsea Newgord  
Stefan A. Hertel  
Alberto Mendoza  
Hani Elshahawi  
Michael Thiel  
Aidan Blount  
Zheng Gan  
Ravinath Kausik  
Archana Jagadisan

## **REGIONAL SPEAKERS 2018-219**

Eduardo Breda  
Paul Craddock  
Iulian Hulea  
Martin Kennedy  
Maurizio Mele  
Claudio Naides  
Dzevat Omeragic  
Alberto Ortiz  
Luis Quintero  
Sushil Shetty  
Luis Stinco  
Martin Storey  
Lalitha Venkataramanan  
Ping Zhang



# SPWLA CHAPTERS

## PROFESSIONAL

Aberdeen (AFES)	FESAus - Australia	Oklahoma City
Abu Dhabi Chapter	FESQ - Formation	Oman Chapter
Angola Chapter	Evaluation Society	Permian Basin
Appalachia Chapter	of Queensland	Qatar
Argentina Chapter	France Chapter (SAID)	Saudi Arabia
Bakersfield- San Joaquin Well	Houston	South China Chapter
Logging Society	India	
Bangkok Chapter	Indonesia (FESI)	
Boston Chapter	Japan (JFES)	
Brazil Chapter	Kuwait	
China (Beijing)	London Chapter (LPS)	
Dallas Chapter	Malaysian Chapter (FESM)	
Denver Chapter	(Kuala Lumpur)	
Dubai Chapter	New Orleans	
Dutch Netherland Chapter (DPS)	Nigeria	
East China	Norway Chapter (NFES)	

## STUDENT

AIN Shams University (ASU)	Institut Teknologi dan	The University of
Egypt	Sains - ITSB Student	Texas @ Austin
AURAK SPWLA Student	Chapter Indonesia	UNAM-SPWLA Stu-
Chapter	Instituto Politecnico Na-	dent Chapter in Mexico
British University in Egypt	tional in Mexico City (IPN	University of Houston
China University of Petroleum	Student Chapter)	University of Louisiana
Student	King Fahd University of	at Lafayette
Federal University of Rio de	Petroleum and Minerals	University of Oklahoma
Janiero Student Chapter	(KFUPM)	
Industrial University of	Texas A&M	
Santander (UIS)	Texas Tech University	

## CHAPTERS-AT-LARGE AND SIGS

Acoustics SIG	NMR SIG
Education SIG	Nuclear Logging SIG
Formation Testing SIG	PDDA Analytics
HAHZ - High Angle and Horizontal	Resistivity Modeling SIG
Wells	Society of Core Analysts (SCA)

# SPWLA Board of Directors 2018-2019



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# SPWLA Technical Committee 2018-2019

## VICE PRESIDENT OF TECHNOLOGY

**James “Jim” Hemingway**, Consultant, Manitou Springs, CO USA

## COMMITTEE MEMBERS

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Christoph Arns, *The University of New South Wales*  
Sap Basu, *ConocoPhillips*  
Nadege Bize-Forest, *Schlumberger/ SPWLA Regional Director Latin America*  
Donald L. Clarke, *ExxonMobil*  
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Liz Davis, *BP*  
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Pascal Debec, *Total*  
Mohamed Saleh Efnik, *Mubadala Petroleum*  
Hesham El-Sobky, *ConocoPhillips*  
Benjamin Fletcher, *Consultant*  
Giuseppe Galli, *Eni S.p.A.*  
Jusmell Graterol Parodi, *Halliburton*  
Weijun Guo, *Halliburton*  
Iulian Hulea, *Shell*  
Mayank Malik, *Chevron*  
Jennifer Market, *Lloyd's Register/ SPWLA VP Finance, Secretary & Admin*  
Alberto Mendoza, *Imperial College London*  
Geoff Page, *Baker Hughes – GE*  
Shyam Ramaswami, *Shell*  
Ferdinanda Pampuri, *Eni S.p.A.*  
Matthew Reppert, *Neptune Energy*  
Jorge Sanchez-Ramirez, *BHP*  
Mehmoosh Saneifar, *Chevron/SPWLA VP Information Technology*  
Nikita Seleznev, *Schlumberger*  
Philip Singer, *Rice University*  
Clive Sirju, *CNOOC Ltd*  
Wanida Sritongthae, *PTTEP*  
E.C. Thomas, *Consultant*  
Chris Woods, *Woodside Energy*  
John Zhou, *Maxwell Dynamics*

# Highlights of the Society of Petrophysicists and Well Log Analysts

The Society of Petrophysicists and Well Log Analysts (SPWLA) is a nonprofit corporation dedicated to the advancement of the science of petrophysics and formation evaluation, through well logging and other formation evaluation techniques and to the application of these techniques to the exploitation of gas, oil and other minerals. Founded in 1959, SPWLA provides information services to scientists in the petroleum and mineral industries, serves as a voice of shared interests in our profession, plays a major role in strengthening petrophysical education, and strives to increase the awareness of the role petrophysics has in the Oil and Gas Industry and the scientific community. SPWLA the world's largest International Petrophysics Professional Society celebrates 60 years with a membership of 3000 representing 60 countries.

Offering global exposure through 43 professional chapters and SIG's and 17 student chapters. SPWLA chapters meet regularly for brief technical scientific discussions and for fellowship among peers having a common professional interest in well logging.

Benefits of membership in SPWLA include, online digital copies of Petrophysics Journal, online digital copies of The SPWLA Newsletter, discounts to meetings held by the international parent including the annual five day conference (3-day technical program, 2-day workshops, field trips and more), Spring and Fall Topical Conferences and on-site training classes at the Houston business office. No charge monthly webinars.

Classifications of membership in the Society to accommodate the needs and qualifications of interested persons. These membership classes are Honorary Member, Member, Member Group II, Senior Member and Student Member.

Industry awards are given annually to individuals nominated by their peers. The highest awards of the Society are the Gold Medal Award for Technical Achievement and the Gold Medal Award for Career Service, each of which the status of Honorary Member is given.

The SPWLA was incorporated under the laws of the state of Oklahoma on December 14, 1959. The Society has a Certificate of Authority to conduct affairs in the state of Texas and maintains its business office in Houston. To obtain further information about the SPWLA, you are invited to visit the website or contact our business office:

SPWLA  
8866 Gulf Freeway, Suite 320  
Houston, TX 77017 USA  
Phone: (713) 947-8727  
[www.spwla.org](http://www.spwla.org)

## Notes

## Notes

# **FUTURE SPWLA SYMPOSIUM SITE**

61<sup>ST</sup> Society of Petrophysicists and  
Well Log Analysts Symposium  
in

**Banff, Canada**

**June 20 – 24, 2020**



For more information contact  
SPWLA, 8866 Gulf Freeway, Suite 320, Houston, TX 77017 USA  
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[www.spwla.org](http://www.spwla.org)

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