SPE Distributed Fiber-Optic Sensing for Well, Reservoir and Facilities Management Workshop

This workshop will focus on the value that distributed fiber-optic sensing technologies provide to economically optimize field development and production performance. It will address benefits which include optimizing completion efficiency, maximizing asset value by better choice of field development parameters such as well spacing, and maximizing resource recovery though life-of-field production and injection monitoring. Important aspects to be considered in the workshop are making the technology accessible during periods of low commodity price, decreasing installation risk, improving system reliability, extending the application range of monitoring to all artificial lift methods and bringing the data and interpretation capability to the engineer’s or geoscientist's desk.

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Myden Energy Consulting, PLLC

Steve Mathias
Weatherford

Kyle Friehauf
ConocoPhillips

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GENERAL INFORMATION

About Society of Petroleum Engineers
The Society of Petroleum Engineers (SPE) is a not-for-profit professional association for members engaging in oil and gas E&P, providing resources for technical knowledge. Income from this event will be invested back into SPE to support many other member programs. Scholarships, certification, the Distinguished Lecturer program, and SPE’s energy education program Energy4me are just a few examples.

Accessibility
Our events and functions are accessible to all attendees with wheelchairs. If you require special arrangements, please contact our staff at the registration desk.

Alcohol Policy
SPE recognizes the legitimate serving of alcoholic beverages in the process of conducting business and social activities. We also recognize that the use and consumption of alcohol carries with it the requirement for all attendees to consume those beverages responsibly.

Commercialism
In remaining consistent with workshop objectives and SPE guidelines, commercialism in presentations will not be permitted. Company logos should be used only to indicate the affiliation of the presenter(s).

Continuing Education Units
Attendees will receive 2.0 CEUs. One CEU equals 10 contact hours of participation. CEUs will be awarded through SPE Professional Development for participation and completion of SPE workshop. A permanent record of a participant’s involvement and awarding of CEUs will be maintained by SPE.

Documentation
Following the workshop a url containing released copies of the workshop presentations will be available to all attendees.

Electronic Devices
As a courtesy to the speakers and your fellow registrants, please turn off all electronic devices during presentations.

Name Badges
Please wear your badge at all times. It is a courtesy to your fellow registrants, speakers and sponsors.

Photography and Recording Policy
SPE reserves the exclusive rights to all video/audio recording or reproductions of the workshop. Unauthorized video/audio recording is expressly prohibited in the session room(s) or poster area, whether by video, still or digital camera, mobile phone, or any other means or form of reproduction.

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Workshop Format
Workshops maximize the exchange of ideas among attendees and presenters through brief technical presentations followed by extended Q&A periods. Focused topics attract an informed audience eager to discuss issues critical to advancing both technology and best practices.

Many of the presentations are in the form of case studies, highlighting engineering achievements and lessons learned. In order to stimulate frank discussion, no proceedings are published and members of the press are not invited to attend.
TECHNICAL AGENDA

MONDAY, 18 JULY
1730-1900 | Welcome Reception  
*The Terrace*

TUESDAY, 19 JULY
All technical sessions are located in the Centennial Ballroom.
0700-0800 | Registration  
*Centennial Foyer*

0700-0810 | Breakfast  
*Mountain View Restaurant*
0800-0810 | Chairpersons’ Welcome
0810-0830 | 2016 SPE President’s Remarks  
*Nathan Meehan, Baker Hughes*

0830-1000 | Session 1: Stimulation Diagnostics  
Session Chairs: *Paul Huckabee, Shell*  
*Eric Holley, Pinnacle, a Halliburton Service*

- **Presentation 1:** Monitoring Fracturing Placement and Production using DAS and DTS to Test the Limits of “Limited Entry” Design  
  *Gustavo Ugueto, Shell*

- **Presentation 2:** Eagle Ford Case History – Evaluating Diversion Techniques Through Fiber Optics to Improve Well Performance  
  *Eric Holley, Halliburton*

- **Presentation 3:** How Effective is Flow Diversion?  
  *Kevin Boone, OptaSense*

1000-1030 | Coffee Break  
*Centennial Foyer*

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1030-1200 | **Session 2: Seismic Imaging- Part One**

**Session Chairs:** Barry Freifeld, Lawrence Berkeley National Lab  
Steve Hirshblond, Shell

- **Presentation 1:** Low-Cost, Low-Footprint, On-Demand Seismic Surveillance with DAS VSP in Deepwater Gulf of Mexico  
Jorge Lopez, Shell

- **Presentation 2:** Depth Calibration of Distributed Acoustic Sensing VSP Data  
Andreas Ellmauthaler, Halliburton

- **Presentation 3:** Remote Offshore VSP Acquisition  
Tim Morrish, OptaSense

1200-1300 | Lunch  
*Mountain View Restaurant*

1300-1430 | **Session 3: Flow Monitoring and Quantitative Interpretation**

**Session Chairs:** Jeff App, Chevron  
Kyle Friehauf, ConocoPhillips

- **Presentation 1:** DAS & DTS Fracture Monitoring Predictions  
Stuart Large, Fotech

- **Presentation 2:** Observation of Long Term Flow Monitoring and Production Profiling Trends using Distributed Acoustic Sensing  
Gustavo Ugueto, Shell

- **Presentation 3:** Cement Monitoring with Distributed Acoustic (DAS) and Temperature (DTS) Sensing  
Erik Lee, Baker Hughes

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1430-1500 | Coffee Break
Centennial Foyer

1500-1700 | Session 4: Seismic Imaging- Part Two
Session Chairs: Barry Freifeld, Lawrence Berkeley National Lab
Steve Hirshblond, Shell

- Presentation 1: An Evaluation of Fiber Optic DAS for Time-Lapse VSP Monitoring
  Jon Cocker, Chevron

- Presentation 2: Borehole Seismic Calibration and VSP Imaging Using DAS and Optical-Electrical Wireline Cables
  Bill Underhill, Schlumberger

- Presentation 3: DAS Vertical Seismic Profiling – Correlation between Surveillance and Modelling Results
  Peter Hayward, Fotech

- Presentation 4: Quality of VSP Data Acquired by Distributed Acoustic Sensing
  Andreas Ellmauthaler, Halliburton

1700-1830 | Networking Reception
Cheyenne Courtyard

WEDNESDAY, 20 JULY

0700-0800 | Breakfast
Mountain View Restaurant

0800-1000 | Session 5: Data Handling and Visualization
Session Chairs: Kelly Hughes, Chevron
John Lovell, Schlumberger

- Presentation 1: Fiber Optic Distributed Sensing End-to-End Workflow Integration – How to Make it Work?
  Wilfred Berlang, Shell

- Presentation 2: Data Integration Transforms the Value of Distributed Measurements
  Paul Dickenson, Schlumberger

- Presentation 3: Data Stream Analytics Platform for Remote Sensor Data
  Tamas Nemeth, Chevron

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Presentation 4: A Strategy for the Practical Application of DAS Monitoring
Dao Xiang, Interpretive Software Products, Inc.

1000-1030 | Coffee Break
Centennial Foyer

1030-1200 | Session 6: Fiber Deployment, Installation Advances, and Reliability
Session Chairs: Roger Duncan, Baker Hughes
Bill Shroyer, SageRider

Presentation 1: First Implementation of Permanent Fiber-Optic Surveillance in an Unconventional Resource Play
Sudipta Sarkar, Chevron

Presentation 2: Locating Perfs, Plugs, Orientation Clamps, and Fractures…They’re Not Where You Thought They Were
Kevin Boone, OptaSense

Presentation 3: Case Histories of Combined Distributed Fiber Optics with Production Logging for Improved Horizontal Well Evaluations
Bryan Hemard, Inversion

1200-1300 | Lunch
Mountain View Restaurant

1300-1430 | Session 7: Steam-Assisted Gravity Drainage (SAGD) and Thermal Applications
Session Chairs: Steve Hirshblond, Shell
Roger Duncan, Baker Hughes

Presentation 1: Application of Fiber Optics for Evaluation of Wellbore Integrity in Horizontal Steam Injectors
Mahdy Shirdel, Chevron

Presentation 2: Thermal Monitoring using Distributed Array Temperature and Pressure Sensing
Chris Baldwin, Weatherford

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Presentation 3: SAGD Production Optimization using Fiber Optic Distributed Acoustic and Temperature Sensing
Bryan Rapati, Pinnacle, a Halliburton Service

1430-1500 | Coffee Break
Centennial Foyer

1500-1700 | Session 8: Integrity and Flow Assurance Monitoring
Session Chairs: Doug Norton, Fiber Optic Pipeline Solutions
Bill Shroyer, SageRider

Presentation 1: In-Well Distributed Strain Sensing
Matt Cannon, Shell

Presentation 2: Single-Ended Distributed Temperature and Strain Monitoring
Wieland Hill, Lios Technology

Presentation 3: DAS Testing Of Mixed Phase Sub Sea Leaks
Edward Zisk, OptaSense
Shane Siebenaler, SWRI

Presentation 4: Distributed Fiber-Optic Real-Time Geophysical Monitoring
Roger Duncan, Baker Hughes

THURSDAY, 21 JULY
0700-0800 | Breakfast
Mountain View Restaurant

0800-0930 | Session 9: Emerging and Enabling Technologies
Session Chairs: Barry Freifeld, Lawrence Berkeley National Lab
Dennis Dria, Myden Energy Consulting, PLLC

Presentation 1: Seismic Interferometry with Distributed Acoustic Sensing for Near-surface Monitoring of Critical Infrastructure
Nathaniel Lindsey, Lawrence Berkeley National Lab

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