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May 7, 2018

### **GENERAL MEETING**

### Explaining Frac Through Instrumented Well Data Acquisition

Kyle Friehauf - ConocoPhillips

Denver Athletic Club
May 16, 2018, 11:30 AM - 1:00 PM
Early-bird registration deadline: May 14 at 5:00 PM

#### Tickets:

| Members     | \$25 |
|-------------|------|
| Non-Members | \$35 |
| Walk-Ins    | \$45 |

### **Register Now**

#### Outline:

- What is an instrumented well? Distributed Temperature Sensing (DTS) & Distributed Acoustic Sensing (DAS)
- What problems can this technology solve? What business decisions can the technology impact? Namely, completions (frac) design and well spacing and stacking decisions. The presentation will mostly focus on frac design.
- Applications (deliverables produced) from instrumented well data and workflows
- Strategies for instrumented well pilot design
- The role of functional skills and teams in the process

**Biography:** Kyle Friehauf is a Staff Completions Engineer in the Global Completions Engineering group in ConocoPhillips. He has been in completions related technology development and technical support roles for 8 years within ConocoPhillips. His primary role has been in development, execution, and interpretation of instrumented well pilots in unconventional resources. He holds a BS from Colorado School of Mines and a PhD from The University of Texas, both in Chemical Engineering.

#### In this Issue... - <u>Newsletter Sponsor</u>

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#### Thanks to This Month's Newsletter Sponsor:



#### **Judges Needed - Energy Project Competition**

At the May General Meeting, high school physics students will present energy-themed projects in the form of a competition! The top 3 groups will receive prize money donations from SPE. We need judges to determine which projects will earn the gold, silver, and bronze. Volunteers need only arrive 30 minutes prior to the General Meeting to judge the projects. Interested? <u>Sign up</u>.

Thank you to this month's General Meeting sponsor:



## **EDUCATION TRACK**

#### **Diagnostic Fracture Injection Test** *Robert Barree - Barree & Associates*

Liberty Oilfield Services, 950 17th St Suite 2400, Denver
 May 24, 2018, 11:00 AM - 2:00 PM

### **Register Now**

**Class Description:** Since the introduction of the G-function derivative analysis, pre-frac diagnostic injection tests have become a valuable and commonly used technique. A consistent method of analysis of the G-function, its derivatives, and its relationship to other diagnostic techniques including square-root(time) and log-log plots and their appropriate diagnostic derivatives must be applied to obtain useful results. Examples are presented to show the application of multiple diagnostic analysis methods, including specialized analyses necessary for tests at the toe of horizontal wells. The goal of the short-course is to provide a method for consistent identification of after-closure flow regimes, an unambiguous fracture closure time and stress, and a reasonable engineering estimate of reservoir flow capacity from the pressure falloff data, without requiring assumptions such as a known reservoir pressure.

**Instructor:** Robert D. Barree is president and principal investigator of Barree & Associates, a consulting firm specializing in stimulation



## Delivering stage production insight to enhance recovery and reduce costs.



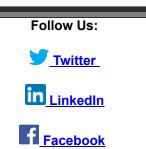
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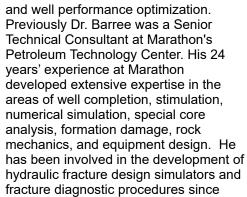
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SPE Denver Website

May SPE Newsletter





1980 and is the primary author of the fully three-dimensional hydraulic fracture simulator GOHFER.

### STUDY GROUPS

#### Reservoir - Maximizing Reservoir Economics Using DNA Sequencing

Liz Percak-Dennett - Biota Technology

Halliburton, 1125 17th Street, Suite 1900, Denver
 May 22, 2018, 11:30 AM - 12:30 PM

### Register Now

**Abstract:** Biota Technology's mission is to deploy DNA sequencing to maximize reservoir economics. The application of DNA sequencing in the oil and gas industry provides operators with a non-invasive, high-resolution data source to track subsurface fluid movement by examining subsurface DNA originating from microbial communities within the subsurface. To date, the technology has been applied on over 400 wells by a majority of top US Shale producers in all major basins of North America including the Permian, Eagle Ford, and Bakken. Deployment of this technology has resulted in increased reservoir understanding including monitoring of drainage heights and well:well communication over time. In this presentation Dr. Liz Percak-Dennett will speak to Subsurface DNA Diagnostics basics, field workflow, data analysis, and provide several case studies of practical applications in U.S. shale.



**Biography:** As the Technology Director at Biota Technology, Liz is accountable for the delivery of all technical projects to unconventional and offshore customers. In this role, she delivers customer value through a broad skill set in geology, microbiology, geochemistry, and oilfield operations. Prior to Biota, Liz worked as a geologist for Hess Corporation in the Bakken and offshore Guyana teams. Liz holds a BS in geology from the University of Alaska Anchorage and an MS and

Ph.D. in geoscience from the University of Wisconsin-Madison where she researched geomicrobiology in subsurface environments on modern and ancient Earth as part of the NASA Astrobiology Institute.

#### **Drilling - Pushing Long Lateral Drilling Limits** Wesley Blackman - Schlumberger

Schlumberger, 1675 Broadway, Suite 700, Denver
 May 29, 2018, 11:30 AM - 1:00 PM

### **Register Now**

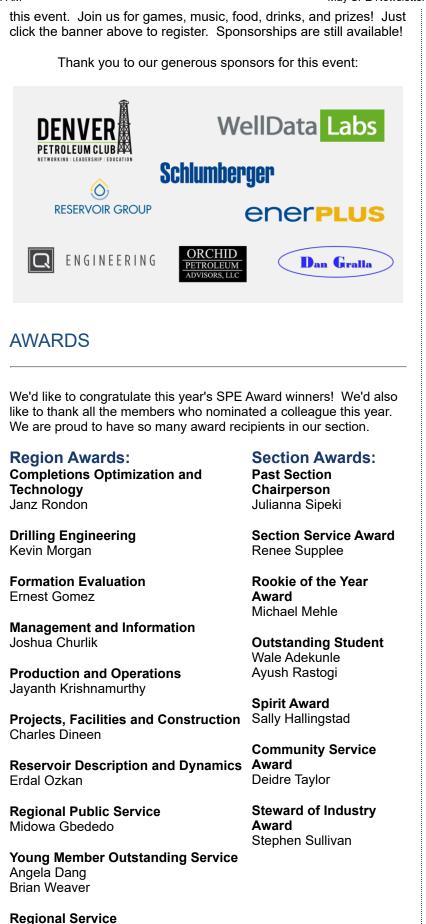
Abstract: Lateral lengths in North America are pushing the limits of what was previously thought possible or economical in an unconventional market. Drilling a lateral exceeding 20,000 horizontal feet requires precise directional control. Maintaining strict lateral spacing maximizes resource recovery, and reducing tortuosity allows for more choices in completions design. However, these drilling goals can sometimes conflict. Rotary steerable technology is one solution, enabling precise trajectory control at high ROP and allowing operators to reduce tophole costs and increase lateral lengths without compromising completion design. Schlumberger achieves this via closed loop hold inclination and azimuth control (HIA) with PowerDrive Orbit. HIA allows for lower tortuosity, fewer downlinks, and fewer steering actions to keep a smooth trajectory. This has significant positive benefits when considering future casing and completions designs, with traditional plug-and-perf completions requiring the ability to drill plugs all the way to the toe of the well. Drilling such long laterals also requires more traditional drilling engineering considerations, including drilling string optimization and drilling fluid design, to stay within the operating envelope of land rigs. These criteria are just as important as the steering technology used, and must be discussed in the planning stages to ensure a successful well.

**Biography:** Mr. Blackman graduated from the University of Oklahoma with a B.S. in Mechanical Engineering. He has spent the last eight years drilling unconventionals with Schlumberger, beginning as a field engineer in the Permian Basin, and subsequently serving as the lead drilling engineer for key projects in the Permian, Mid-Continent, Rockies, and Appalachian basins, with a strong focus on efficient rotary steerable deployment in varying applications. Wesley Blackman is currently the Technical and Reliability Engineer supporting and improving PowerDrive rotary steerable services at a North America level.

### MEMBERSHIP



volunteers. We'll also be recognizing our 25+ year membership at



Rhonda Gathers



### **GOLF TOURNAMENT**

#### 2018 Denver SPE Golf Tournament

• The Ridge at Castle Pines North

IIII August 3, 2018, 7:00 AM - 5:00 PM

### **Register Now**

All proceeds benefit the Denver SPE Scholarship Fund, with over \$20,000 donated in 2017!

Format: Four-person scramble

**Tournament Information:** Each foursome will play one round with a Shotgun start time of either 7:30am or 1:00pm depending on your selected preference. Sponsors will receive first preference on Tee Times.

Tee times will be guaranteed ONE month prior to the tournament and not before!

**Fees:** \$800 per foursome – includes breakfast/lunch for morning tee times or lunch/dinner for afternoon tee times. Door and Skill prize drawings take place following each round.

**Sponsorships:** We offer four levels of sponsorship donation. Those companies generously donating \$1,500 or more will receive the ultimate recognition as a Platinum Sponsor. Likewise, companies donating \$1,000, \$500 or \$200 will be recognized as Gold, Silver, or Bronze sponsors. The sponsoring companies will be recognized at the tournament and in the SPE Newsletter.

Registration will only be open to sponsors until May 15th. At that time registration will open to non-sponsors.

#### PARTNER EVENT

COGA's Energy Summit: Growth. Expectations. Opportunities

• Colorado Convention Center

🔜 August 20-22, 2018

#### **Register Now**

The Energy Summit proudly enters its 30th year with a focus on "Growth. Expectations. Opportunities." Will the innovations and advancements of tomorrow solve the issues that industry is grappling with today in board rooms, on investor calls, in political circles, and on the global stage? Over two days, our speakers will explore the growth opportunities afforded to industry, the expectations that come with domestic and global leadership and the opportunities to provide a cleaner energy future, a safer industry and a better world.

SPE Members, use discount code **SPE-MEMBER** for 10% off of your registration!



#### YOUNG PROFESSIONALS

#### Lunch & Learn - Applications of Viscosity-Building Friction Reducers as Fracturing Fluids Mark Van Domelen, Downhole Chemical Solutions

Liberty Oilfield Services, 950 17th St. Suite 2400, Denver
 May 9, 2018, 11:30 AM - 1:00 PM
 Lunch will be provided

### **Register Now**

Abstract: Driven by the need to reduce cost and simplify operations, the oil and gas industry is transitioning to a new generation of fracturing fluid systems that provide operational simplicity and other advantages over more traditional fluid chemistries. Viscosity-building friction reducers (VFR) have become the fracturing fluid of choice by many operators in the unconventional resource plays across North America. These fluids provide key advantages over conventional guar-based fracturing and slickwater fluids, including enhanced well production through cleaner proppant packs, simpler fracturing operations, and improved design change flexibility with rapid hydration of the polymer. When compared to slickwater fluids, the VFR systems allow for higher sand concentrations to be placed and significant reduction in water volumes required to place the large sand volumes being pumped today. This presentation will provide laboratory, field data, and well production results to demonstrate the advantages being observed with these relatively new fluid systems.

**Biography:** Mark Van Domelen is the Vice President of Technology for Downhole Chemical Solutions, where his primary areas of expertise are hydraulic fracturing and well completion methods. Prior to joining DCS, Mark worked for a major service company for 31 years in a variety of roles including engineering, technology, operations management, supply chain, and training positions. Mark has a degree in Mining Engineering from the University of Wisconsin and has authored many industry papers and served on several committees for the Society of Petroleum Engineers.

Mark is passionate about developing young professionals and recently published two SPE papers on the topic of multidisciplinary training and participates as a mentor through the SPE Trailblazer and E-Mentoring programs. Mark was also selected to be an SPE Distinguished Lecturer for the 2018/2019 season on the topic of "Developing the Next Generation of Completion Engineers".

#### Last YP Happy Hour of the Season!

Rio Grande Mexican Restaurant, 1525 Blake Street
 May 9, 2018, 4:30 PM - 6:00 PM

Join us for a drink and appetizers to catch up and network with friends and colleagues. It's on us!

### **EXECUTIVE BOARD**

#### SPE 2018-2019 Executive Board Voting Slate

At the May 2018 General Meeting, members of the SPE Denver Section will have the opportunity to vote to confirm the following nominees for the Denver Section Executive Board:

**Position** Section Chairperson Program Chairperson Secretary Treasurer **Nominee** Deb Ryan Angela Dang Justin Griffin Kelly Wingard Treasurer Elect Membership Chairperson Community Outreach Chairperson Young Professionals Chairperson Section Chairperson One-Year Director Director Midowa Gbededo Karthik Srinivasan Ellen Scott Jessica Iriarte Megan Powell Wendell Salas Justin Knappe

#### **Society of Petroleum Engineers - Denver Section**

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