SPE Mid-Continent Section Newsletter

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Mid-Continent Section

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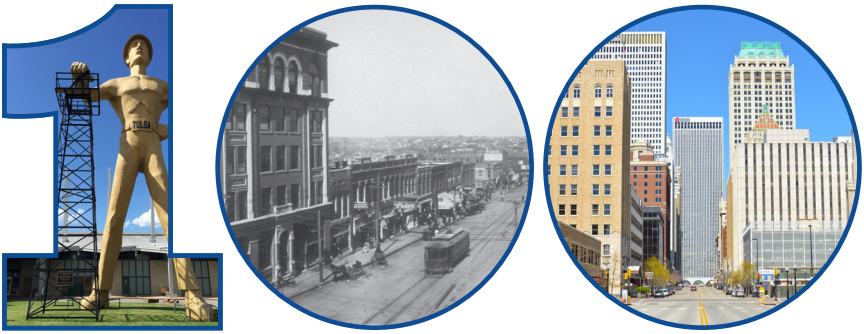

SPE Mid-Continent Section

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Voting members consist of the Executive Committee. The Chairman only votes in the event of a tie. A Motion can be voted upon with a Quorum of the Voting Members present. A Quorum consists of five Voting Members present. An affirmative vote will consist of 51% of the Quorum present. Committee Chairmen and in their absence, the Committee Vice Chairmen are encouraged to attend board meetings and provide representation and committee reports. The editor welcomes newsworthy items about SPE members or events. Please provide a **draft to the newsletter editor by the 25th of the month.** Change of contact information requests should be made to SPE in Richardson, TX, 1-800-456-6863, or service@spe.org.

Chairman's Gavel

Nathan Buchanan, 2017-2018 Chairman

From the weather we've been having in Tulsa, you would think spring is already here, but we still have a couple weeks before winter is officially over. The Mid-Continent Section has a full calendar of events to look forward to this spring.

Our last luncheon meeting was held February 13; Lloyd Hetrick with Newfield Exploration gave a presentation regarding water management in the STACK. The meeting was well attended, and—despite some technical difficulties with the projector at the Summit Club—was well received. I'd like to thank Mr. Hetrick for coming up here from Houston to give a talk.

On March 21, Srikanta Mishra with the Battelle Memorial Institute will be speaking at a luncheon; his topic is "Big Data Analytics: What Can it Do for Petroleum Engineers and Geoscientists?" Dr. Mishra will also be conducting a short course the following day, March 22. We have a number of other events coming up in April and May, so be sure to check out SPEMC's website and keep an eye out for emails from the Section.

As I have previously mentioned, the SPE Improved Oil Recovery Conference is taking place April 14-18. The IOR conference takes place biennially, and it generates the largest portion of the revenue for our section's scholarship program (and contributes a significant amount of our section's operating budget). Registration is open now, and exhibit space is still available. I encourage each of you to attend. Thanks to the IOR planning committee for the work they have put into the 2018 conference.

I'll look forward to seeing each of you in the coming weeks.

Nathan Buchanan
2017-2018 Chairman
nsbuchanan@gmail.com

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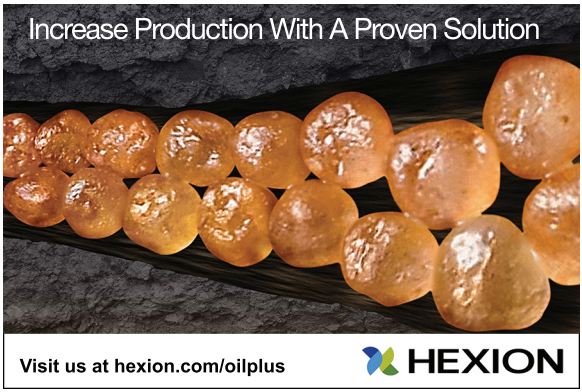

A Free Service for Mid-Continent Section Members and Their Employers

SPE is offering a free service to section members and their employers for the posting of jobs offered by employers (please, no third party recruiters) seeking to hire SPE members and for members seeking employment. Unless otherwise arranged, ads will stay on the website for one calendar month. To view available jobs go to the section website **www.spemc.org** and select Help Wanted/Situation Wanted. To submit an ad (120 words or less, please) e-mail **spemc@spemc.org** for consideration.

From Your Editor

Betty Felber, 2017-2018 Editor

This newsletter notifies you that there are two section meetings this month. Our joint meeting with geologists and geophysicists and another with our short course leader.

This is also the last month you can sign up for the IOR Symposium at a reduced rate. Better hurry!!! The Symposium is an important section event. It provides scholarship money and the operating capital for our section—the oldest in the world. Go ahead, make the commitment, register and attend. We want to see all of you at our Section's biggest sponsored event.

Betty Felber
Editor

Calendar of Events

Wednesday, March 21, 2018 - Luncheon Meeting - Summit Club

- Srikanta Mishra, Battelle Memorial Institute "Big Data Analytics: What Can It Do For Petroleum Engineers And Geoscientists?"

Thursday, March 22, 2018 - Short Course - Summit Club

- Srikanta Mishra, Battelle Memorial Institute " Applied Statistical Modeling and Data Analytics for Reservoir Performance Analysis"

Wednesday, April 4, 2018 - Luncheon Meeting - Summit Club

- John Jackson, Unimin Corporation "OSHA New Silica Regulation and How to Mitigate It with No Footprint"

April 14-18, 2018, SPE Improved Oil Recovery Conference - Tulsa

- Short Courses Sat. 14th - Sun. 15th, Technical Program Sessions, Mon. 16th - Wed. 18th - **Register Now** at **www.speior.org.**

Friday, April 20, 2018 - Luncheon Meeting - Oaks Country Club

- Fernando L. Benalcazar, APD Proyectos CIA. LTDA - Distinguished Lecturer "Oil and Gas Operations – Integrating the Realities of the Social License"

Saturday, April 28, 2018 - Short Course - The University of Tulsa

- Mohan Kelkar, The University of Tulsa "Analysis of Producing Wells in Unconventional Reservoirs"

Thursday, May 10, 2018 - Luncheon Meeting - Summit Club

- R. Scot Buell, Chevron Energy Technology Company - Distinguished Lecturer "Waterflood Design and Operational Best Practices" ***SAVE THE DATE***

All SPE luncheons are held at the Summit Club unless otherwise noted - See p7 for more details.

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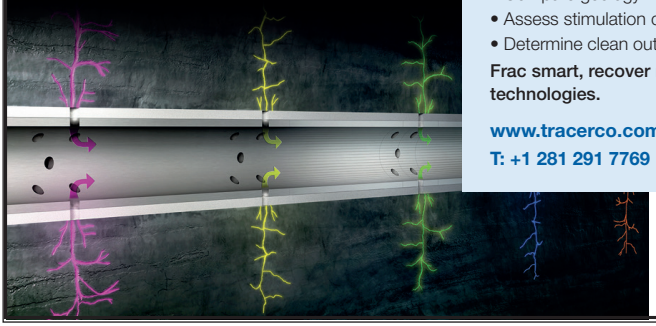

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MARCH 2018

WEDNESDAY, March 21, 2018 - Luncheon Meeting
Location: Summit Club, 30th Floor, Ballroom
Speaker: Srikanta Mishra, Battelle Memorial Institute
Topic: "Big Data Analytics: What Can It Do For Petroleum Engineers And Geoscientists?"

Register: **https://spemc032118.eventbrite.com**

Description
Big data analytics has become quite the buzzword in recent years, and its growing application in E&P operations promises to be an exciting new development. It involves: (1) acquiring and managing data in large volumes, of different varieties, and at high velocities, and (2) using statistical techniques to "mine" the data and discover hidden patterns of association and relationships in large, complex, multivariate datasets. The ultimate goal is to extract as much intelligence from our ever-expanding trove of data to improve operational efficiencies and make better decisions for optimizing the performance of petroleum reservoirs. However, the subject remains a mystery to most petroleum engineers and geoscientists because of the statistics-heavy jargon and the use of complex algorithms.

In this talk, I will provide a "gentle" introduction to big data analytics by focusing on: (a) easy-to-understand descriptions of the commonly-used concepts and techniques, (b) broad categories of E&P problems that can be solved with big data analytics, and (c) case studies demonstrating the value-added proposition for big data.

The one key idea I would like to offer as a takeaway is this: There is significant potential for data analytics to provide insights that can be translated into actionable information in E&P projects, but petroleum engineers and geoscientists need to have a fundamental understanding of data-driven modeling concepts, their applicability and limitations.

Speaker
Srikanta Mishra
Dr. Srikanta Mishra is Institute Fellow and Chief Scientist (Energy) at Battelle Memorial Institute, the world's largest independent contract R&D organization. He is responsible for developing and managing a geoscience-oriented technology portfolio related to computational modeling and data analytics for geological carbon storage, shale gas development and improved oil recovery projects. Dr. Mishra has taught short courses on uncertainty quantification, statistical modeling and data analytics at various professional conferences and client locations in the US, China, Spain, Japan, Finland, Belgium and Switzerland. He is author of the book "Applied Statistical

SPE Mid-Continent luncheon meetings are held at the Summit Club** in Tulsa from 11:20-1:00 p.m. unless otherwise noted. SPE Mid-Continent luncheon meetings are held at the Summit Club in Tulsa. To register and pay by credit card, or make a reservation to pay by check or cash at the door, go to the corresponding link for a luncheon. Luncheon cost is $25.00 professional, $10 retired/unemployed, and free for students (limited seating available). Payment by credit card is for advanced registrations ONLY, no credit cards will be accepted at the meeting, only check or cash with a reservation. Registration ends 48 hours prior to the luncheon date. No walk-ins please.

Summit Club | Bank of America Center, 15 West Sixth Street (NE corner of 6th & Boulder) | Tulsa, OK 74119 | 918.582.5243 | Parking details are available at **www.summittulsa.com/club/parking.

Modeling and Data Analytics for the Petroleum Geosciences" recently published by Elsevier, as well as ~200 technical publications. He holds a PhD degree from Stanford University, an MS degree from University of Texas and a BTech degree from Indian School of Mines – all in Petroleum Engineering.

THURSDAY, March 22, 2018 - Short Course
Location: Summit Club, 30th Floor, Ballroom
Instructor: Srikanta Mishra, Battelle Memorial Institute
Topic: "Applied Statistical Modeling and Data Analytics for Reservoir Performance Analysis"

Register: **https://spemc032218.eventbrite.com**

Description
The course fee of $400 includes course notes, lunch, and a PDH certificate. A textbook, on which the course is based, is available for purchase at the discounted rate of $100. Purchase of the textbook is recommended but is not required for the course.

The Course
There is a growing trend towards the use of statistical modeling and data analytics for analyzing the performance of petroleum reservoirs. The goal is to "mine the data" and develop data-driven insights to understand and optimize reservoir response. The process involves: (1) acquiring and managing data in large volumes, of different varieties, and at high velocities, and (2) using statistical techniques to discover hidden patterns of association and relationships in these large, complex, multivariate datasets. However, the subject remains a mystery to most petroleum engineers and geoscientists because of the statistics-heavy jargon and the use of complex algorithms.

This workshop will provide an introduction to statistical modeling and data analytics for reservoir performance analysis by focusing on: (a) easy-to-understand descriptions of the commonly-used concepts and techniques, and (b) case studies demonstrating the value-added proposition for these methods. Participants are encouraged to bring their own laptops to follow along the exercises in the workshop. Topics to be covered include:

- Terminology and basic concepts of statistical modeling and data analytics

- Multivariate data reduction and clustering (for finding sub-groups of data that have similar attributes)
- Machine learning for regression and classification (for developing data-driven input-output models from production data as an alternative to physics-based models)
- Proxy construction using experimental design (for building fast statistical surrogate models of reservoir performance from simulator outputs for history matching and uncertainty analysis)
- Uncertainty quantification for performance forecasting

Learning Level
Introductory to Intermediate

Why Attend?
As "big data" becomes more common place, it will be necessary to extract as much intelligence from our ever-expanding trove of dynamic data from petroleum reservoir to improve operational efficiencies and make better decisions. This course provides the background to understand and apply fundamental concepts of classical statistics, as well as emerging concepts from data analytics, in the analysis of reservoir performance related datasets. This will petroleum engineers/geoscientists to efficiently interact with data scientists and develop practical data-driven applications for their assets (without getting lost in the math).

Who Should Attend
As "big data" becomes more common place, it will be necessary to extract as much intelligence from our ever-expanding trove of dynamic data from petroleum reservoir to improve operational efficiencies and make better decisions. This course provides the background to understand and apply fundamental concepts of classical statistics, as well as emerging concepts from data analytics, in the analysis of reservoir performance related datasets. This will petroleum engineers/geoscientists to efficiently interact with data scientists and develop practical data-driven applications for their assets (without getting lost in the math).

Instructor
Dr. Srikanta Mishra is Institute Fellow and Chief Scientist (Energy) at Battelle Memorial Institute, the world's largest independent contract R&D organization. He is responsible for developing and managing a geoscience-oriented technology portfolio related to computational modeling and data analytics for geological carbon storage, shale gas development and improved oil recovery projects. Dr. Mishra has taught short courses on uncertainty quantification, statistical modeling and data analytics at various professional conferences and client locations in the US, China, Spain, Japan, Finland, Belgium and Switzerland. He is author of the book "Applied Statistical Modeling and Data Analytics for the Petroleum Geosciences" recently published by Elsevier, as well as ~200 technical publications. He holds a PhD degree from Stanford University, an MS degree from University of Texas and a BTech degree from Indian School of Mines – all in Petroleum Engineering.

APRIL 2018

WEDNESDAY, April 4, 2018 - Luncheon Meeting
Location: Summit Club, 30th Floor, Ballroom
Speaker: John Jackson, Unimin Corporation
Topic: "OSHA New Silica Regulation and How to Mitigate It with No Footprint"

Register: **https://spemc040418.eventbrite.com**

Description
In June 2016, the Occupational Safety and Health Administration, OSHA, reduced the Permissible Exposure Limit (PEL) and created an Action Level (AL) for respirable crystalline silica (RCS) by half and will require engineering controls to help mitigate employee exposure. In June 2018, the new RCS PEL of 0.05 mg/m3 averaged over an 8-hour period will apply to hydraulic fracturing and most other industries, and engineering control obligations will commence in June 2021 for hydraulic fracturing operations.

With an average of over one million pounds of silica sand used in horizontal well completions, crystalline silica is a major component of hydraulic fracturing. Multiple proppant transfer points can generate high concentrations of airborne dust, from offloading trucks to being pumped down hole. Engineering controls can be used to mitigate exposure.

A study was conducted at multiple hydraulic fracturing sites to determine if RCS concentrations could be reduced below OSHA's new PEL using engineering controls that do not have an onsite footprint, namely chemically pre-treated sand. The results showed significant reductions in RCS in both personal and area sampling.

Speaker
John Jackson
John Jackson is the Application Technology Manager for Unimin Energy in The Woodlands, Texas. He holds a Bachelor of Science degree in Chemistry from Sam Houston State University. John has spent the last 7 years in proppant research and development for the hydraulic fracturing industry. He is currently developing engineering methods to control respirable crystalline silica within the Oil & Gas and glass markets.

John serves as the Co-Chair of the American Petroleum Institute 19 C group, which oversees the practice for measurement of proppants used in hydraulic fracturing. He previously served 5 years on the Board of Directors for the Society of Petroleum Engineers Gulf Coast Section, where he won awards for section services and committee of the year.

FRIDAY, April 20, 2018 - Luncheon Meeting
Location: Oaks Country Club
Speaker: Fernando L. Benalcazar, APD Proyectos CIA. LTDA - Distinguished Lecturer
Topic: "Oil and Gas Operations – Integrating the Realities of the Social License"

Register: **https://spemc042018.eventbrite.com**

Description
Oil and gas are essential parts of a sustainable future. Though these are finite energy resources and sources of greenhouse gas emissions, the world continues to require their production. For this reason, it is imperative that we consider improved industry practices.

To begin, the audience will be presented with the most basic principles of sustainability pertaining to oil and gas operations, including SPE's position on this matter. When oil is discovered at a location, decisions and guarantees cannot be made without considering the project's life cycle. Our commitments must be demonstrated consistently along each stage of a project in direct consideration of a sustainable future.

Next, several case studies relating to sustainability, integrating the realities of the social license to operate and operations will be presented to the audience, detailing the required steps for the successful execution of any project facing challenging conditions.

The presentation will conclude by underlining that the inclusion of internal and external stakeholders will only enrich the project and, therefore, pave the road to success. It is our responsibility to create a culture of operational professionalism and reliability through active participation. In order to counterbalance the world's energy demand, we must produce oil and gas while considering that the more efficiently the energy is produced, the more affordable the energy will be. The oil industry is not only committed to its own sustainability but also to the sustainability of our planet.

Speaker
Fernando L. Benalcazar
A Senior Adviser with APD Proyectos, Fernando L. Benalcazar has been in the oil industry for 24+ years and has provided project management and support for numerous international projects in Syria, France, Canada, the US, Oman, Venezuela, Colombia, and Ecuador. Benalcazar focuses on operation excellence, sustainable development, and stakeholder engagement. He also specializes in health, safety, and environment (HSE), local content, capacity building, and new ventures. He has authored or coauthored more than 12 technical papers and holds a MS degree in civil engineering from Alberto Luiz Coimbra Institute for Graduate Studies and Research in Engineering (COPPE) at the Federal University of Rio de Janeiro, Brazil. He holds a Certified Safety Professional (CSP) designation in the US and has served on SPE's Sustainability Technical Committee since 2012. Benalcazar was the chair of a SPE Applied Technology Workshop and of two Latin American and Caribbean regional conferences. He has acted as a member of SPE Ecuador's Board since 2011 and is

currently President-Elect. Benalcazar has been a chairperson for the environmental focus area of the SPE International HSSE-SR Advisory Committee since 2015.

SATURDAY, April 28, 2018 - Short Course
Location: The University of Tulsa, Keplinger Hall, Room L1
Instructor: Mohan Kelkar, The University of Tulsa
Topic: "Analysis of Producing Wells in Unconventional Reservoirs"

Register: **https://spemc042818.eventbrite.com**

Description
The course fee of $350 includes course notes, lunch, and a PDH certificate.

The Course
Analyzing producing wells in unconventional formation requires different evaluation techniques compared to conventional wells. Unlike conventional formation, unconventional wells produce under transient conditions for long time and analyzing the data under those conditions correctly is important. This one day course will cover both theory and practice of evaluating the wells producing from unconventional formations. Specific topics covered will include: presence of flow regimes in producing wells; evaluation and identification of flow regimes; reservoir parameters that can be obtained from evaluation of production data; use and abuse of standard decline curve analysis tools; and proper methodology for generating type curves. We will demonstrate the methodology using Harmony software which is widely used in the industry. Course notes will be provided.

Instructor
Mohan Kelkar received his MS in Petroleum Engineering and PhD in Chemical Engineering from the University of Pittsburgh. He joined the University of Tulsa as assistant professor in 1983 and is currently Williams Endowed Chair Professor of Petroleum Engineering at the University of Tulsa. He served as a chairman of Petroleum Engineering department from 2002 through August of 2016. He has authored over 60 refereed papers and has made over 250 technical presentations at various technical meetings. He has authored or co-authored three books. He is actively involved in Society of Petroleum Engineers (SPE) and recently served as regional director at SPE International.

MAY 2018

SAVE THE DATE

THURSDAY, May 10, 2018 - Luncheon Meeting
Location: Summit Club, 30th Floor, Ballroom
Speaker: R. Scot Buell, Chevron Energy Technology Company - Distinguished Lecturer
Topic: "Waterflood Design and Operational Best Practices"



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"Yesterday's errors are today's power"

– **Anonymous**

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