

November 2017

SPWLA Houston Chapter Newsletter

We hope all of you impacted by Hurricane Harvey are safe and secure. As we recover, let us not forget to lend a helping hand!

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Meet our Sponsors

HALLIBURTON



Upcoming Events

Northside Luncheon | Characterizing Natural Gamma Ray Tools Without the API Calibration Formation by Gordon L. Moake, Halliburton | November 30th [\[link\]](#)

Downtown Luncheon | Advances in Neutron/X-Ray Imaging and Small Angle Scattering of Shale Rocks by Dr. JinHong Chen, Aramco | December 5th [\[link\]](#)

SPWLA Houston Chapter Software Show 2017 | December 11th [\[link\]](#)

SPWLA NMR SIG Conference 2018 | Everyday NMR: From Unconventionals to New Horizons | February 23rd, 2018

President's Corner

Dear members of the Houston Chapter,

I am happy to inform you that we've got a good start on the matching donations and already reached 30% of the goal of \$5,000. We would like to express appreciation to our members who donated for Harvey recovery. If you have made a donation please check if your donation qualifies for a match and let our treasurer Tianmin Jiang (treasurer@spwla-houston.org) know. If you haven't donated please consider doing so. Information on how to donate and which donations qualify are posted in this newsletter. We'll be collecting donations till the end of the year.

In October, our chapter hosted two luncheons. The northside luncheon hosted Medhi E Far, Halliburton with the talk on Elastic Anisotropy of VTI Media on October 31st. The downtown luncheon took place at BHP in Galleria and featured a talk by Reza Safari, Weatherford on Geomechanical Aspects of Carbonate Rock Acidizing. Both events were well attended.

The Machine Learning for Petrophysics bootcamp was held on October 23-25 on the University of Houston Campus. The bootcamp was a success and was sold out within the first few days. We received great feedback from the participants! For those who got on the waiting list or couldn't attend, please stay tuned. We are currently organizing another session of the bootcamp for early 2018. The advanced version of it is also in the works. Stay tuned and act fast when we open registration. Seats disappear very fast!

Software show registration is open! This year it will be held on Monday, December 11th 2017 at the Weatherford International (2000 Saint James Place, Houston). Please check our website for more information. With any questions please reach out to Jeff Crawford (events@spwla-houston.org) or myself.

The Houston Chapter of SPWLA was happy to support and sponsor the event of the University of Houston SPWLA Student Chapter: Applied Petrophysics workshop "Triple Combo 2017" on November 10th, 2017. Please follow up on social media and learn more about events and activities the chapter holds.

As always feel free to contact me if you have any questions or comments at president@spwla-houston.org.

Kind regards,
Irina Borovskaya
President
Houston Chapter of SPWLA



Irina Borovskaya
Houston Chapter President
president@spwla-houston.org

Useful links

**Sign up for the
Houston Chapter
Mailing List**
[\[Link\]](#)

[Houston Chapter](#)

[SPWLA International](#)

[Join SPWLA – become a
member](#)

[Houston Chapter
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Downtown Luncheon

Advances in Neutron/X-Ray Imaging and Small-Angle Scattering of Shale Rocks by Dr. JinHong Chen

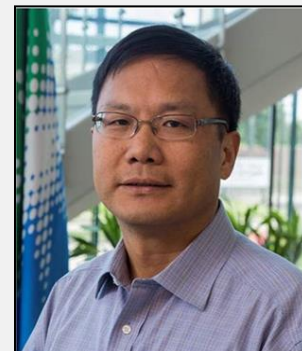
Tuesday, December 5th, 2017

Lunch: 11:30 Talk: 12:00-1:00

Register Online, \$20 per person, \$10 per student and includes lunch

Chevron Auditorium 1500 Louisiana St. Houston, TX 77002

Parking in 1400 Louisiana garage and limited street parking



Abstract

Hydrocarbon production from shales using horizontal drilling and hydraulic fracturing has been the key development in the US energy industry in the past decade and has now become more important globally. Nevertheless, many fundamental problems related to the storage and flow of light hydrocarbons in shales are still unknown. It has been reported recently that the gas storage within the shale rocks is predominately associated with the organic component, the so-called kerogen, in the rocks, which is found to be imbedded within the inorganic matrix and has pores of characteristic length scale between 1 and 100 nm. The surface properties of these pores in the shale rocks are determinant factors for both reserve estimation and production-rate prediction in shale reservoir. In addition, the 3D connectivity of these kerogen pores and possibly with fractures from the micrometer to centimeter scale forms the flow path for light hydrocarbons. Therefore, to better model the gas-in-place and permeability in shales, it is necessary to quantify the surface properties of the kerogen pores and identify the structural distribution of organic and inorganic components and fractures in shale rocks over a large breadth of length scales.

Simultaneous neutron and X-ray tomography offers a core-scale non-destructive method that can distinguish the organic matter, inorganic minerals, and open and healed fractures in 2.5 cm diameter shales with a resolution of about 30 μm . Three shale samples from different locations were investigated using simultaneous neutron and X-ray tomography. We were able to construct 3D images of shales and isolate 3D maps of organic matter and minerals including high-Z element. The distribution of kerogen and fractures can be used in the modeling of hydrocarbon flow in core scale, a 109 upscaling from current methods that model the flow based on SEM images.

Dr. JinHong Chen joined Aramco Research Center-Houston in 2013 and is working on developing technologies for improved evaluation and production in unconventional source rock reservoirs. Previously, he is a petrophysicist responsible for R&D in NMR formation evaluation technology at Baker Hughes. Before that, he was a senior scientist working at Sloan-Kettering Cancer Center leading the research in the development of NMR technology for application in cancer diagnosis and treatments. He was also a research fellow at Harvard University and a visiting scientist at MIT

Northside Luncheon

Characterizing Natural Gamma Ray Tools Without the API Calibration Formation by Gordon L. Moake

Thursday, November 30th, 2017

Lunch: 11:30 Talk: 12:00-1:00

Register Online by Wednesday Nov. 29th 12:00pm

Weatherford Lab, 5200 N. Sam Houston Pkwy West Suite 500

Houston, TX 77086

Visitors are requested to reverse park, note license plate #, sign in at main reception



Abstract

The natural gamma ray API formation maintained by the University of Houston (UH formation) defines the API unit to which natural gamma ray tools are calibrated. Unfortunately, the narrow borehole of the UH formation cannot accommodate logging-while-drilling (LWD) tools, and planned expansion of the university will soon make the formation unavailable. This talk illustrates how the UH formation can be replaced with a combination of computer modeling and a single calibration point. The effectiveness of the method is illustrated with a wireline tool and an LWD tool.

This method defines a formation to be used with computer models (digital API formation) that emulates the UH formation. However, unlike the UH formation, the digital API formation has an uncased borehole. With modeling, it is easy to vary the size of the borehole to match the tool size being calibrated. To account for imperfections in the tool model, the model is calibrated by comparing its predictions to physical-tool measurements in a large tank of potassium chloride brine. Tool sensitivity is computed by dividing the calibrated count rate computed for the digital API formation by the API value assigned to the formation.

This method is shown to match the sensitivity of a wireline tool that was calibrated in the UH formation to within 1%. The method was also used to compute the sensitivity of an LWD tool, which compares favorably to the measured sensitivity determined with granite blocks. Using this method, the UH formation can be safely discarded. In addition, better agreement between wireline and LWD logs can be obtained because they are all calibrated in the same formation and in their natural logging positions. Details of the digital API formation are disclosed.

Gordon L. Moake is a chief scientific advisor for Sensor Physics in the Halliburton Drilling and Evaluation division. Currently, his primary focus is the development of LWD nuclear tools, although he sometimes works on other projects. Before joining Halliburton in 1984, Moake worked for four years at Baker Tubular, developing electromagnetic flaw detectors. Moake obtained BS degrees in math and in physics from the University of Wisconsin, and MS and PhD degrees in physics from Purdue University. He is a member of SPWLA and holds 30 US patents related to the oil and gas industry. Moake has authored or co-authored 20 conference papers and five journal papers in the oil and gas industry.

SPWLA Houston Chapter Software Show 2017

Save the date and secure your place - December 11th!

The SPWLA Houston Chapter invites you to join us at the 2017 SPWLA Houston Chapter Software Show on December 11th to learn about recent innovations and technology advancement in software for formation evaluation and data interpretation.

The Showcase will be held at Weatherford International, 2000 Saint James Place, Houston, TX 77056.

December 11th, 2017.

Details on the exhibitors and schedule to follow.

For more information, contact events@spwla-houston.org

Registration links and attendance fees are as follows:

General Registration (\$30); Students/Member In Transition (\$20) - Click [Here](#) To Register
Vendors: \$400 - Click [Here](#) To Register

Hurricane Harvey Help

The **Hurricane Harvey** has been devastating for Texas. Many of our friends were affected as lives and property were lost. We know that many of our members were involved in helping during and after the hurricane through volunteering and personal donations. Our chapter would like to step in and support that by matching every donation that was done for the hurricane relief by our members up to \$5000 to be given to American Red Cross.

Please send the confirmation of the qualifying donations made after the hurricane Harvey to our treasurer at treasurer@spwla-houston.org. Qualifying donations are made to non-profit, non-religious organizations for providing support and activities during and after the Hurricane Harvey. You can also submit your donation to the chapter that we'll match and transfer to the American Red Cross using PayPal link.

If you have any questions, please contact us at:

president@spwla-houston.org

treasurer@spwla-houston.org

SPWLA NMR SIG Conference 2018

Houston, Texas, February 23, 2018
Chevron Building, 1500 Louisiana St.

Everyday NMR: From Unconventionals to New Horizons

Building on the success of the 2016 NMR Topical Conference, an NMR SIG has been established within SPWLA in order to facilitate communication within the community of people interested in using NMR for the discovery and development of oil and gas reservoirs. The first NMR SIG conference will be in Houston on Feb. 23, 2018. Join us as we explore NMR as an EVERYDAY tool, with special focus on the NMR of unconventional formations as well as the new horizons of the future.

Conference registration fee TBD. Members and Non-Members Welcome.

Events Recap



Reza Safari speaking on geomechanical aspects of carbonate rock acidizing



Petrophysics machine learning bootcamp conducted by Lewis Matthews