

**SPWLA 62nd Annual Logging Symposium
May 17-20 2021 – 4 day Virtual Event**

Monday – May 17th

- 8:00 Opening Remarks** - Chairman – Paul Craddock, Schlumberger
- 8:10 Keynote Speaker** – Nial McCollam, Lloyd’s Register
- 8:40 Panel Discussion** – Moderator- Siddarth Misra
- 10:00 Introduction of Technical Sessions** - Vice President of Technology – Tegwyn J. Perkins
- 10:10 Break (15 mins)**
- 10:25 Session 1A – Production Logging**
- 10:30 SPWLA-2021-0001** **PRODUCTION OPTIMIZATION OF SANDING HORIZONTAL WELLS USING A DISTRIBUTED ACOUSTIC SENSING (DAS) SAND MONITORING SYSTEM: A CASE STUDY FROM THE ACG FIELD IN AZERBAIJAN**
Zahid Hasanov, Parviz Allahverdiyev and Fuad Ibrahimov, BP; Alberto Mendoza, Pradyumna Thiruvankatanathan, Lilia Noble and Jonathan Stapley, LYTT Limited
- 10:50 SPWLA-2021-0111** **UTILIZING ULTRASONIC AND PULSED-EDDY CURRENT TECHNOLOGIES TO MAP THE LOCATION OF FIBER-OPTIC CABLE AND CLAMPS: A CASE STUDY**
Roddy Hebert, Rojelio Medina, JC Pinkett and Tyler Costa, Halliburton
- 11:10 SPWLA-2021-0003** **DOPPLER VS. SPINNER PLT SENSING FOR HYDROCARBON VELOCITY ESTIMATE BY DEEP-LEARNING APPROACH**
Klemens Katterbauer and Alberto Marsala, Saudi Aramco; Virginie Schoepf and Linda Abbassi, Openfield Technology
- 10:25 Session 1B – Conventional Reservoir Petrophysics- I**
- 10:30 SPWLA-2021-0004** **ADDRESSING RESERVOIR HETEROGENEITY BY INTEGRATION OF GEOCHEMISTRY AND PETROPHYSICAL LOGS IN CARBONATE PROSPECTS**
Kemal C. Hekimoglu, Filippo Casali and Antonio Bonetti, Geolog International
- 10:50 SPWLA-2021-0005** **AN ADVANCED PETROPHYSICAL ORIENTED NUMERICAL METHOD FOR RELIABLE ASSESSMENT OF MECHANICAL PROPERTIES IN CARBONATE FORMATIONS AT THE PORE-SCALE DOMAIN**
Mehdi Teymouri and Zoya Heidari, The University of Texas at Austin
- 11:10 SPWLA-2021-0006** **DECIPHERING LOW RESISTIVITY PAY TO DERISK A COMMERCIAL DISCOVERY: CASE STUDY FROM THE NORWEGIAN SEA**
Mohammad Ibrahim Khan, Equinor; Harish Datir and Subhadeep Sarkar, Schlumberger; Bjarne Rafaelsen, Equinor
- 11:30 Exhibit Break (15 mins)**
- 11:45 SPWLA Annual Business Meeting (60 mins)**
- 12:50 Session 2A – Borehole Imaging**
- 12:55 SPWLA-2021-0007** **WELLBORE IMAGES DIGITAL FUSION: BEYOND SINGLE-SENSOR PHYSICAL CONSTRAINTS**
Simone Di Santo, Nadege Bize-Forest and Isabelle Le Nir, Schlumberger; Carlos Maeso, Retired
- 13:15 SPWLA-2021-0008** **TAMING THE THUNDER HORSE WITH AXES AND VECTORS**
Bernd Ruehlicke, Andras Uhrin, Zbynek Veselovsky and Markus Schlaich, Eriksfiord
- 13:35 SPWLA-2021-0009** **FIELD-TESTING A THROUGH-THE-BIT HIGH-DEFINITION ELECTRICAL BOREHOLE IMAGER FOR OIL-BASED MUD**
Richard Bloemenkamp, Elia Haddad, Nadege Bize-Forest, Laetitia Comparon and Peter Schlicht, Schlumberger

12:50 **Session 2B – Deepwater Reservoir Analysis**

- 12:55** SPWLA-2021-0010 **DIGITAL FLUID SAMPLING IN DEEP WATER RESERVOIRS USING RESERVOIR FLUID GEODYNAMICS: THE BEGINNING OF THE DIGITAL FLUID SAMPLING REVOLUTION**
Camilo Gelvez, The University of Texas at Austin; Gerardo Cedillo, Eric Soza, Doris Gonzalez, Benjamin S. Slotnick, Sol Moreno, Wilson Pineda and Milad Saidian, BP America; Oliver C. Mullins, Scott Paul, Jesus Cañas and Alok Kulkarni, Schlumberger
- 13:15** SPWLA-2021-0011 **A PRACTICAL GUIDE TO EFFECTIVE DEEP-WATER FLUID SAMPLING WHILE DRILLING**
Matt Wandstrat, Consultant; Gerard Simms, LLOG Exploration Inc.; Femi Adegbola, Steve Smith and Vincent Liaw, Baker Hughes
- 13:35** SPWLA-2021-0012 **ENHANCING THE UNDERSTANDING OF ASPHALTENE PRECIPITATION: A NOVEL APPROACH UNDER IN-SITU CONDITIONS**
Rohin Naveena-Chandran, Farrukh Hamza, Gibran Hashmi and Jason Rogers, Halliburton; John Meyer and Sara Chapman, Kosmos Energy

13:55 *Break (15 mins)*

14:10 **Session 3A – Formation Rock Analysis**

- 14:15** SPWLA-2021-0013 **THE IMPACT OF OVERBALANCED DRILLING FROM EXPLORATION/APPRaisal WELLS TO FIELD DEVELOPMENT PLAN**
Mohammadhossein Mohammadlou, Matthew Guy Reppert, Roxane Del Negro and George Jones, Neptune Energy Norway
- 14:35** SPWLA-2021-0014 **NANOTAGS FOR IMPROVED CUTTING DEPTH CORRELATION**
Martin E. Poitzsch, S. Sherry Zhu and Marta Antoniv, Aramco Research Center; Nouf M. Aljabri and Alberto F. Marsala, Saudi Aramco, EXPEC ARC
- 14:55** SPWLA-2021-0015 **ADAPTATION OF CRUSHED ROCK ANALYSIS TO INTACT ROCK ANALYSIS FOR IMPROVING WATER SATURATION ASSESSMENT AND FAST PRESSURE DECAY PERMEABILITY QUANTIFICATION**
Kai Cheng, J. Alex Zumberge, Stephanie E. Perry and Patrick M. Lasswell, GeoMark Research, Ltd

14:10 **Session 3B – Well Integrity**

- 14:15** SPWLA-2021-0016 **A RESONANCE-BASED THROUGH-TUBING CEMENT EVALUATION TECHNOLOGY**
Jie Li, Qinshan Yang, Jinsong Zhao, Jeff Olson, Marvin Rourke, GOWell International LLC; Mohamed Larbi Zeglache, Saudi Aramco–EXPEC Advanced Research Center
- 14:35** SPWLA-2021-0017 **APPLICATION OF ELECTROMAGNETIC TECHNOLOGY FOR CORROSION MONITORING IN WELLS WITH DUAL COMPLETIONS**
Junwen Dai and Ahmed E. Fouda, Halliburton
- 14:55** SPWLA-2021-0018 **SUCCESSFUL SAND PRODUCTION MANAGEMENT THROUGH ADVANCED ANALYSIS OF WELL INTEGRITY LOGS IN CASABE FIELD, COLOMBIA**
Cristian Escarraga, Schlumberger; Emiro Leon, Ecopetrol; Marcia Benavides and Tatiana Taborda, Schlumberger

15:15 *Break (15 mins)*

15:30 **Session 4A – Brownfields Petrophysics**

- 15:35** SPWLA-2021-0019 **SIDE FAULT MAPPING ENABLED BY 2D TRANSVERSE INVERSION ON NEW DEEP DIRECTIONAL RESISTIVITY MEASUREMENTS**
Michael Thiel, Haifeng Wang, Dzevat Omeragic and Jean-Michel Denichou, Schlumberger; Barry Goodin, Vermilion Oil & Gas Australia Pty Ltd
- 15:55** SPWLA-2021-0020 **UTILIZING NEAR AND FAR FIELD BOREHOLE MEASUREMENTS FOR A COMPREHENSIVE CARBONATE FRACTURE CHARACTERIZATION**
Amr M. Serry, Sultan D. Al-Hassani, Shafiq N. Ahmed, Owais A. Khan, Hassan F. Aboujmeih, Hasan Zakaria and Olivier P. Pippi, ADNOC Offshore; Israa A. Salim, Amro Abdel-Halim and Adam Donald, Schlumberger

16:15 SPWLA-2021-0021 **INTRINSIC CARBON-OXYGEN LOGGING FOR ENHANCED CONSISTENCY OF RESERVOIR SATURATION MONITORING**
Shouxiang Mark Ma, Saudi Aramco; Nacer Guergueb, Weijun Guo and Mahmoud Eid, Halliburton

15:30 **Session 4B – New Borehole – Logging Technologies**

15:35 SPWLA-2021-0022 **WELLSITE FULL WAVEFORM SONIC INTERPRETATION**
J. Adam Donald and Erik Wielemaker, Schlumberger; Chris Holmes, Denison Gas and Tom Neville, Asia-Pacific Formation Evaluation Services

15:55 SPWLA-2021-0023 **CAN A NEW DOUBLE PARTICLE DETECTOR-CLYC (CS₂LIYCL₆:CE) BE USED IN PN LOGGING FOR TIGHT GAS EVALUATION?**
Qixuan Liang, Feng Zhang, Xiaoyang Zhang, Qian Chen and Jilin Fan, China University of Petroleum (East China)

16:15 SPWLA-2021-0024 **DECIPHERING THE CAPABILITIES OF LOOK-AHEAD METHODS IN LWD**
Jun Zhu, Yong Die and Yuanshi Tian, LWD Center of China Petroleum Logging Co.Ltd. and John Zhou, Maxwell Dynamics Inc.

16:35 *End of 1st Day - Adjourn*

Tuesday – May 18th

8:00 **Session 5A – Formation Fluid Analysis – I**

8:05 SPWLA-2021-0025 **PIONEERING APPLICATION OF EMERGING TECHNOLOGIES TO THE CHALLENGE OF SAMPLING NEAR-SATURATED FLUIDS IN TIGHT RESERVOIRS**
Brett Wendt, Adam Lewis, ConocoPhillips Alaska; German Garcia and Hadrien Dumont, Schlumberger

8:25 SPWLA-2021-0026 **IMPROVING RESERVOIR TESTING AND SAMPLING IN H₂S CONTAMINATED FLUIDS BY ADAPTING STATE-OF-THE-ART SEMICONDUCTOR THIN FILM TECHNOLOGY FOR DOWNHOLE TESTER TOOLS**
Jimmy Price, Darren Gascooke, Anthony Van Zuilekom and Christopher Jones, Halliburton

8:45 SPWLA-2021-0027 **DEEP TRANSIENT TESTING DIGITAL PRODUCTS CREATE NOVEL REAL-TIME RESERVOIR INSIGHTS**
Jansen Oliveira, Karl Perez H., Alejandro Martin V., Ricard Fernandez T., Teresa Polo N., and Lorenzo Villalobos V., REPSOL; Francois Xavier Dubost, Manuel Lavin V., Adriaan G. Gisolf, Richard R. Jackson, Simon Edmundson, Hadrien Dumont, Hugo Hernandez E. and Javier Espinosa, Schlumberger

9:05 SPWLA-2021-0028 **COMPARATIVE SIMULATION OF WATER-BASED MUD-FILTRATE INVASION IN HIGH-PERMEABILITY AND TIGHT SANDSTONE RESERVOIRS USING LARGE-SIZED FORMATION MODULES**
Junchen Wu, Yiren Fan and Shaogui Deng, School of Geosciences, China University of Petroleum (East China); Ruokun Huang, Research Institute of Petroleum Exploration and Development, PetroChina Tarim Oilfield Company; Fei Wu, Suzhou Niumag Analytical Instrument Corporation; Zhongtao Wang, China Petroleum Logging CO.LTD.

8:00 **Session 5B – Core Analysis**

8:05 SPWLA-2021-0029 **A DEEP-LEARNING APPROACH FOR LITHOLOGICAL CLASSIFICATION USING 3D WHOLE CORE CT-SCAN IMAGES**
Kurdistan Chawshin, Carl Fredrik Berg, Damiano Varagnolo, Norwegian University of Science and Technology; and Olivier Lopez, Equinor ASA

8:25 SPWLA-2021-0030 **A NEW OPTIMIZATION METHOD FOR ENHANCED FORMATION EVALUATION AND ROBUST PHYSICS-BASED AUTOMATIC ROCK CLASSIFICATION USING HIGH-RESOLUTION CT-SCAN IMAGE DATA AND CONVENTIONAL WELL LOGS**
Andres Gonzalez and Zoya Heidari, The University of Texas at Austin; Olivier Lopez, Equinor

- 8:45** SPWLA-2021-0031 **IMPACTS AND LESSONS LEARNED FROM AN APPLIED CASE STUDY IN THE WILLISTON, UINTA AND DJ BASINS UTILIZING OPEN VERSUS CLOSED RETORT QUANTIFICATION**
Stephanie E. Perry, J. Alex Zumberge and Kai Cheng, GeoMark Research Ltd.
- 9:05** SPWLA-2021-0032 **UNCERTAINTY QUANTIFICATION BY MONTE CARLO SIMULATION OF LAB-DERIVED SATURATION DATA FROM SPONGE CORES**
Mohammed Alghazal and Dimitrios Krinis, Saudi Aramco
- 9:25** *Break (15 mins)*
- 9:40** **Session 6A – Dielectric**
- 9:45** SPWLA-2021-0033 **DEEP DIELECTRIC-BASED WATER SATURATION IN FRESHWATER AND MIXED SALINITY ENVIRONMENTS**
Ping Zhang, Wael Abdallah and Gong Li Wang, Schlumberger; Shouxiang Mark Ma, Saudi Aramco
- 10:05** SPWLA-2021-0034 **INTERPRETATION OF MULTI-FREQUENCY DIELECTRIC PERMITTIVITY MEASUREMENTS FOR ASSESSMENT OF WATER SATURATION IN CARBONATE FORMATIONS WITH COMPLEX PORE STRUCTURE**
Zulkuf Azizoglu and Zoya Heidari, The University of Texas at Austin
- 10:25** SPWLA-2021-0035 **MODEL-BASED CORRECTION FOR DIP AND SHOULDER BED EFFECTS ON LWD PROPAGATION DIELECTRIC CONSTANT AND RESISTIVITY LOGS**
Gong Li Wang, Dean Homan, Ping Zhang and Wael Abdallah, Schlumberger; Shouxiang Ma, Saudi Aramco
- 9:40** **Session 6B – Machine Learning – I**
- 9:45** SPWLA-2021-0036 **DATA QUALITY CONSIDERATIONS FOR PETROPHYSICAL MACHINE LEARNING MODELS**
Andrew McDonald, Lloyd’s Register
- 10:05** SPWLA-2021-0037 **FACIES CLASSIFICATION OF A COMPLEX RESERVOIR USING MACHINE LEARNING: CASE STUDY FROM VOLCANIC FORMATION, THE YURIHARA OIL FIELD, JAPAN**
Yuki Maehara, Schlumberger; Takeaki Otani and Tetsuya Yamamoto, Japan Petroleum Exploration Co., Ltd.
- 10:25** SPWLA-2021-0038 **EFFICIENT PETROPHYSICAL UNCERTAINTY PROPAGATION VIA DATA-DRIVEN ANALYTICS**
Carlo Cristiano Stabile and Marco Pirrone, ENI S.p.A.
- 10:45** *Break (15 mins)*
- 11:00** **Session 7A – Ultra-Deep Resistivity**
- 11:05** SPWLA-2021-0039 **DETECTION OF OFFSET WELLS AHEAD OF AND AROUND AN LWD ULTRA-DEEP ELECTROMAGNETIC TOOL**
Nigel Clegg, Alban Duriez, Vladimir Kiselev and Supriya Sinha and Tim Parker, Halliburton; Fredrik Jakobsen and Erik Jakobsen, Aker BP; David Marchant and Christoph Schwarzbach, Computational Geosciences Inc.
- 11:25** SPWLA-2021-0040 **TOWARD THREE-DIMENSIONAL RESERVOIR MAPPING – A NEW APPROACH FOR MAPPING RESERVOIRS WITH ADVANCED ULTRA-DEEP AZIMUTHAL RESISTIVITY MEASUREMENTS**
Haifeng Wang, Michael Thiel, Jean-Michel Denichou, Diogo Salim, Soazig Leveque, and Vera Krissetiawati Wibowo, Schlumberger; Chris Woods and Darren Baker, Woodside Energy Ltd.
- 11:45** SPWLA-2021-0041 **REAL-TIME 3D IMAGING OF COMPLEX TURBIDITIC RESERVOIR ARCHITECTURE**
Supriya Sinha, Karol Riofrio, Arthur Walmsley and Nigel Clegg, Halliburton; Stig Sviland-Østre and Nicolas Gueze, Aker BP
- 11:00** **Session 7B – Case Studies- I**
- 11:05** SPWLA-2021-0042 **X-RAY DIFFRACTION, X-RAY FLUORESCENCE, AND NEUTRON INDUCED SPECTROSCOPY BASED CORRECTION TO IVAR AASEN GEOMODEL: AN OILFIELD FROM THE NORWEGIAN NORTH SEA**
Egil Romsås Fjeldberg, Yngve Bolstad Johansen, Lodve Hugo Olsborg, Geir Frode Kvilaas, and Tor-Ole Jøssund, Aker BP; Harish Datir, Schlumberger

- 11:25** SPWLA-2021-0043 **INTEGRATED EVALUATION OF LAMINATED SAND-SHALE GAS-BEARING RESERVOIR USING TENSOR MODEL: A CASE STUDY COMBINING DATA FROM TRIAXIAL RESISTIVITY, IMAGE, SONIC, AND RESERVOIR TESTING IN B-FIELD, MALAYSIA**
Aditya Arie Wijaya, Ivan Zhia Ming Wu, Sarvagya Parashar and Mohammad Iffwad, Halliburton; Amirul Afiq B Yaakob, William Amelio Tolioe, Adib Akmal Che Sidid and Nadhirah Bt. Ahmad, Petronas Carigali
- 11:45** SPWLA-2021-0044 **AN INTEGRATED PETROPHYSICAL CHARACTERIZATION OF A SILICICLASTIC TIGHT GAS RESERVOIRS IN NEUQUÉN BASIN, WESTERN ARGENTINA**
Nicolas Carrizo and Emiliano Santiago, YPF S.A. and Universidad Nacional del Comahue; Pablo Saldungaray, Schlumberger
- 12:05** *Exhibit Break (15 mins)*
- 12:25** *Lunch*
- 13:25** **Session 8A – Case Hole Logging - I**
- 13:30** SPWLA-2021-0045 **THROUGH-TUBING CASING DEFORMATION AND TUBING ECCENTRICITY IMAGE TOOL FOR WELL INTEGRITY MONITORING AND PLUG-ABANDONMENT**
Qinshan Yang, Kuang Qin, Jeff Olson and Marvin Rourke, GOWell International
- 13:50** SPWLA-2021-0046 **IDENTIFICATION OF BREAKOUT BEHIND CASING: METHODOLOGY TO OBTAIN OPENHOLE EQUIVALENT CALIPER MEASUREMENTS THROUGH SLOTTED LINER USING THE DENSITY TOOL**
Laurent Mosse, Schlumberger; Stephen Pell, Santos Ltd. and Thomas Neville, Asia-Pacific Formation Evaluation Services Pty Ltd
- 14:10** SPWLA-2021-0047 **A NOVEL THROUGH-CASING CORRECTION ALGORITHM FOR A 4-DETECTOR GAMMA DENSITY TOOL**
Ya Jin* and Shang Jie, Lin Huang, Zenghui Yu and Min Li, China Oilfield Services Limited; Chen ZengHai, CNOOC China Limited Pengbo Operating Company; Yulian Li*, Wei Tang, Yating Hu, Lvlin Lin, Qinzhong Zhang and Qiong Zhang, University of Electronic Science and Technology of China (Ya Jin* and Yulian Li* are co-first authors)
- 13:25** **Session 8B – Borehole Imaging- II**
- 13:30** SPWLA-2021-0048 **A NEW PSEUDO-VELOCITY-BASED METHOD TO MITIGATE LWD IMAGE INTERPRETATION RISKS**
Tianhua Zhang, Shiduo Yang, Chandramani Shrivastava, Adrian A and Nadege Bize-Forest, Schlumberger
- 13:50** SPWLA-2021-0049 **EVALUATION OF LWD HIGH RESOLUTION ULTRASONIC IMAGING TECHNOLOGY AND APPLICATIONS IN SLIM HOLE SIZE**
Mohamed M. Hashem, Saudi Aramco; Ahmed Taher, Mohamed Fouda and Rehab Al-Khalifah, Halliburton
- 14:10** SPWLA-2021-0050 **ASSESSMENT OF NEW HIGH-DEFINITION BOREHOLE IMAGING-WHILE-DRILLING TECHNOLOGY: LEARNINGS FROM PRE-SALT CARBONATES OF BRAZIL**
Nicolas Orban, Shashank Garg and Mikhail Shaldaev, TOTAL; Chandramani Shrivastava, Guillermo Cuadros, Victor Marquez, Adrian A, Vera Wibowo and Ricardo Domingos, Schlumberger
- 14:30** *Break (15 mins)*
- 14:45** **Session 9A – Petrophysics**
- 14:50** SPWLA-2021-0051 **RESERVOIR SCALE CHEMOSTRATIGRAPHY AND FACIES MODELING USING HIGH SAMPLE RATE GEOPHYSICAL SCANS OF WHOLE CORE**
John J.Degenhardt, Jr., Safdar Ali, Mansoor Ali, Brian Chin and W. D. Von Gonten, Jr., W. D. Von Gonten Laboratories and Eric Peavey, Shell Fellow-UROC and Dept. of Geology & Geophysics, Texas A&M University
- 15:10** SPWLA-2021-0052 **ENHANCED ASSESSMENT OF FLUID SATURATION IN THE WOLFCAMP FORMATION OF THE PERMIAN BASIN**
Sabyasachi Dash and Zoya Heidari, The University of Texas at Austin
- 15:30** SPWLA-2021-0053 **WELL-TEST LOGGING TO ENDEAVOR MAPPING THE CARBONATES PERMEABILITY, OFFSHORE ABU DHABI**
Antoine Jacques and Vincent Jaffrezic, TOTAL SE; Benoit Brouard, BROUARD Consulting; Shafiq Ahmed, Amr Mohamed Serry, Raymond Nguyen and Yann Bigno, ADNOC Off Shore

14:45 **Session 9B – Case Studies – II**

14:50 SPWLA-2021-0054 **ACQUISITION, ANALYSIS, AND INTEGRATION OF WELLBORE LOGS TO CHARACTERIZE A FRACTURED GEOTHERMAL RESERVOIR: THE CASE OF RITTERSHOFFEN, FRANCE**
Giovanni Sosio, Andreia Mandiuc and Annalisa Campana, Schlumberger; Jeanne Vidal, Universidad de Chile; Régis Hehn, GéoPlusEnvironnement; Clément Baujard, ÉS Géothermie

15:10 SPWLA-2021-0055 **3D PETROPHYSICS FOR HAWE: CASE STUDIES**
Alexander Kolomytsev, GazpromNeft; and Yulia Pronyaeva, Schlumberger

15:30 SPWLA-2021-0056 **STRESS MEASUREMENT CAMPAIGN IN SCIENTIFIC DEEP BOREHOLES: FOCUS ON TOOL AND METHODS**
Jean Desroches, Rocks Expert; Emilie Peyret, Adriaan Gisolf, Ailsa Wilcox, Mauro Di Giovanni and Aernout Schram de Jong, Schlumberger; Siavash Sepehri, Independent; Rodney Garrard and Silvio Giger, Nagra

15:50 *End of 2nd Day - Adjourn*

Wednesday – May 19th

8:00 **Session 10A – Acoustics - I**

8:05 SPWLA-2021-0057 **ENHANCING THE RESERVOIR PERFORMANCE BY ACCESSING THE RESERVOIR SWEET SPOTS GUIDED BY FAR-FIELD SONIC IMAGING: AN INTEGRATED CASE STUDY FROM THE NORWEGIAN NORTH SEA**
Harish Datir, Schlumberger; Knut Arne Birkedal, Aker BP; Sachin Kriplani and Hege Porten, Schlumberger; Nils Andre Aarseth, Aker BP

8:25 SPWLA-2021-0058 **ULTRASONIC ANGLE-DEPENDENT REFLECTIVITY IN COMPLEX ROCKS FOR IMPROVED INTERPRETATION OF SONIC AND ULTRASONIC LOGS**
Daria Olszowska, Gabriel Gallardo-Giozza and Carlos Torres-Verdín, The University of Texas at Austin

8:45 SPWLA-2021-0059 **AUTOMATIC LOGGING-WHILE-DRILLING DIPOLE SONIC SHEAR PROCESSING ENABLED BY PHYSICS-DRIVEN MACHINE LEARNING**
Lin Liang, Ting Lei and Matthew Blyth, Schlumberger

9:05 SPWLA-2021-0060 **CHARACTERIZING CEMENT BOND QUALITY USING SLIP-INTERFACE THEORY AND COUPLING STIFFNESS**
Xuelian Chen, Xiaoming Tang, Shengqing Li and Yuanda Su, China University of Petroleum

8:00 **Session 10B – Conventional Reservoirs – II**

8:05 SPWLA-2021-0061 **USING HIGH FIDELITY CONTINUOUS CORE DATA FOR A FAST AND OBJECTIVE ESTIMATION OF RESERVOIR QUALITY**
Izral Izarruddin Marzuki and Thanapala Murugesu, Petronas; Christophe Germy, Tanguy Lhomme and Luc Perneder, EPSLOG

8:25 SPWLA-2021-0062 **LEARNINGS FROM SPECTRAL GR MEASUREMENTS FROM LWD AND FROM CUTTINGS IN HIGH AND LOW ANGLE WELLS**
Mohamed Azizi Ibrahim and Faisal Al-Enezi, Saudi Aramco; Marie Van Steene and Alan Fernandes, Schlumberger

8:45 SPWLA-2021-0063 **FROM PLUG MEASUREMENTS TO DYNAMIC SIMULATIONS: UPSCALING EFFECTS ON MODELED HYDROCARBON VOLUMES**
Iulian N. Hulea, Shell Global Solutions International B.V.

9:05 SPWLA-2021-0064 **AUTOMATIC FLOW-CALIBRATED PERMEABILITY LOG ESTIMATION THROUGH DUAL RANDOM FOREST ALGORITHM: HOW PREDICTIVE ANALYTICS ENHANCES THE CHARACTERIZATION OF HETEROGENEOUS CARBONATE RESERVOIRS**
Federica Di Maggio, Giulia Barbacini, Nicola Raimondi Cominesi, Dario Reolon, Marco Pirrone, ENI S.p.A

9:25 *Break (15 mins)*

9:40 **Session 11A – Case Hole Logging - II**

9:45 SPWLA-2021-0065 **A NOVEL METHOD FOR FORMATION DENSITY MEASUREMENT IN CASED WELLS**
Xinguang Wang, China University of Petroleum (East China); Dong Li, China Oilfield Services Limited; Lei Zhang, China National Offshore Oil Corporation International Limited; Feng Zhang and Wenhao Wang, China University of Petroleum (East China); Hui Gao, Xi 'an HuiNeng Electronic Equipment Co. LTD

10:05 SPWLA-2021-0066 **THEORETICAL METHOD AND EXPERIMENTAL RESEARCH ON HIGH PRECISION FOUR DETECTOR DENSITY LOGGING**
Shanqing Cai, Juntao Liu, Lanzhou University; Xusheng Wang, Fudan University and Zhiyi Liu, Lanzhou University

10:25 SPWLA-2021-0067 **DETERMINING THE DENSITY OF MULTIPLE LAYERS USING GAMMA SPECTROSCOPY**
Mayir Mamtimin and Jeffrey Crawford, Halliburton

9:40 **Session 11B – Machine Learning - II**

9:45 SPWLA-2021-0068 **THE APPLICATION OF PATTERN RECOGNITION AND MACHINE LEARNING TO DETERMINE CEMENT CHANNELING & BOND QUALITY FROM AZIMUTHAL CEMENT BOND LOGS**
Andrew Imrie, Halliburton

10:05 SPWLA-2021-0069 **ENHANCED MINERAL QUANTIFICATION AND UNCERTAINTY ANALYSIS FROM DOWNHOLE SPECTROSCOPY LOGS USING VARIATIONAL AUTOENCODERS**
Paul Craddock, Prakhar Srivastava, Schlumberger-Doll Research Center; Harish Datir, David Rose, Tong Zhou, Laurent Mosse and Lalitha Venkataramanan, Schlumberger

10:25 SPWLA-2021-0070 **NOVEL METHODOLOGY FOR AUTOMATION OF BAD WELL LOG DATA IDENTIFICATION AND REPAIR**
Ryan Banas, PetroRes Consulting; Andrew McDonald and Tegwyn J. Perkins, Lloyd's Register

10:45 *Break (15 mins)*

11:00 **Session 12A – Formation Evaluation**

11:05 SPWLA-2021-0071 **ANALYTICAL UNCERTAINTY PROPAGATION IN FACIES CLASSIFICATION WITH UNCERTAIN LOG-DATA**
Fabio Ciabbari, Marco Pirrone and Cristiano Tarchiani, Eni S.p.A

11:25 SPWLA-2021-0072 **APPLICATION OF IMAGE LOGS FOR ENHANCED RESISTIVITY-BASED WATER SATURATION ASSESSMENT IN ORGANIC-RICH MUDROCKS**
Sabyasachi Dash and Zoya Heidari, The University of Texas at Austin

11:45 SPWLA-2021-0073 **GAMMA RAY INDEX–SHALE VOLUME TRANSFORMS**
David Kennedy, QED Petrophysics LLC

11:00 **Session 12B – Unconventional Reservoirs - I**

11:05 SPWLA-2021-0074 **RV/RH ANISOTROPY IN UNCONVENTIONAL FORMATIONS: RESOLVING THE RIDDLE OF RESISTIVITY**
Andrew Barry and Adam Haecker, Continental Resources Inc. and Siddharth Misra, Texas A&M University

11:25 SPWLA-2021-0075 **EVALUATION OF RELATIVE PERMEABILITY OF A TIGHT OIL FORMATION IN DAQING OILFIELD**
D. Leslie Zhang, CNPC USA Corp.; Chunyan Qi, Beijing Huamei Century International Technology Co.; Xiaodong Shi, Jianfei Zhan and Xue Han, Exploration and Development Research Institute of Daqing Oilfield Company Ltd.; Xiangyun Li, Beijing Huamei Century International Technology Co., Ltd.; Ze Wang and Baojun Bai, Missouri University of Science and Technology

11:45 SPWLA-2021-0076 **MACRO-PORE HYDROCARBON SATURATION FROM NMR T_1 - T_2 MAPS IN THE UNCONVENTIONAL POINT- PLEASANT FORMATION**
Xinglin Wang, Philip M. Singer, Zeliang Chen, Yunke Liu and George J. Hirasaki, Rice University; Zheng (Elton) Yang, Scott J. Seltzer, Boqin Sun, Marcus O. Wigand and Jon E. Burger, Chevron Technical Center

12:05 *Exhibit Break (15 mins)*
12:25 *SPWLA Award Ceremony*

13:35 **Session 13A – Geochemistry**

13:40 SPWLA-2021-0077 **INTEGRATING A NOVEL CHLORINE MEASUREMENT WITH RESISTIVITY, DIELECTRIC DISPERSION, AND 2D NMR TO RESOLVE SALINITY AMBIGUITY: CASE STUDIES IN ORGANIC SHALE FORMATIONS**
Andrew C. Johnson, Jeffrey Miles, Laurent Mosse, Robert Laronga, Violeta Lujan, Niranjana Aryal and Dozie Nwosu, Schlumberger

14:00 SPWLA-2021-0078 **REVISING THE INTERPRETATION OF COMPLEX CARBONATE RESERVOIRS WITH THE USE OF NOVEL ADVANCED LOGS INTEGRATION TECHNIQUES**
Harish B. Datir and Laurent Mosse, Schlumberger and Terje Kollien, Lundin Energy Norway

14:20 SPWLA-2021-0079 **A GEOCHEMISTRY-ORIENTED WORKFLOW FOR WETTABILITY ASSESSMENT AT RESERVOIR CONDITION USING MOLECULAR DYNAMICS SIMULATIONS**
Isa Silveira de Araujo, Archana Jagadisan and Zoya Heidari, The University of Texas at Austin

13:35 **Session 13B – Borehole Imaging – II**

13:40 SPWLA-2021-0080 **INVERSION-BASED MEASUREMENT INTERPRETATION OF A NEW THROUGH-THE-BIT OBM PHOTOREALISTIC BOREHOLE IMAGER**
Yong-Hua Chen, Richard Bloemenkamp, Peter Schlicht, Lin Liang and Laetitia Comparon, Schlumberger

14:00 SPWLA-2021-0081 **AN AI-BASED APPROACH TO ENHANCED FRACTURE RESOLUTION IN IMAGE LOGS**
James Howard, Joe Tracey, Mike Shen and Shawn Zhang, DigiM Solution LLC

14:20 SPWLA-2021-0082 **DEEP-LEARNING-BASED AUTOMATED SEDIMENTARY GEOMETRY CHARACTERIZATION FROM BOREHOLE IMAGES**
Marie Lefranc, Zikri Bayraktar, Morten Kristensen, Hedi Driss, Isabelle Le Nir, Philippe Marza and Josselin Kherroubi, Schlumberger

14:40 *Break (15 mins)*

14:55 **Session 14A – Case Studies – III**

15:00 SPWLA-2021-0083 **MULTISCALE LOGGING WHILE DRILLING DATA INTEGRATION UNVEILED COMPLEX GEOLOGICAL SCENARIO WHILE GEOSTEERING**
Maurizio Mele, Filippo Chinellato, Andrea Leone and Francesca Arata, Eni S.p.A.; Caterina Cappannelli, and Matteo Medaglia, Mizamtec Operating Co. S. de R.L. de C.V.

15:20 SPWLA-2021-0084 **IDENTIFICATION OF NATURAL OPEN FRACTURES, INDUCED FRACTURES AND MATRIX PERMEABILITY IN CARBONATES WHILE DRILLING**
Jalal Dashti, Bader Al-Ajmi and Hawas Farwan, Kuwait Oil Company; Ahmad Shoeibi, Milton Sanclemente, Alberto Martocchi and Eliana R. Russo, Geolog International B.V.

15:40 SPWLA-2021-0085 **INTERPRETATION OF LWD ACOUSTIC BOREHOLE IMAGE LOGS: CASE STUDIES FROM NORTH AMERICAN SHALE PLAYS**
Bo Gong, Ela Manuel, Youfang Liu, David Forand, Tom Malizia, Vahid Tohidi and Alex Saldana, Chevron

14:55 **Session 14B – Conventional Reservoirs – III**

15:00 SPWLA-2021-0086 **FORMATION PRESSURE ESTIMATION IN ULTRA-LOW PERMEABLE RESERVOIRS EMPLOYING FORMATION RATE ANALYSIS (FRA) AND ARTIFICIAL INTELLIGENCE CONTROLLED TOOLS**
Yamal Askoul and Gavin JG Sibbald, Baker Hughes; Art Hooker and John Banks, TOTAL E&P UK LTD

15:20 SPWLA-2021-0087 **ANISOTROPY QUANTIFICATION USING HIGH-RESOLUTION WHOLE-CORE CT-SCAN IMAGES**
Andres Gonzalez, Mehdi Teymouri and Zoya Heidari, The University of Texas at Austin; Olivier Lopez, Equinor

15:40 SPWLA-2021-0088

ROCK TYPING AND NOVEL APPROACH FOR FLUID-SATURATION DISTRIBUTION IN TILTED WATER/OIL CONTACT RESERVOIRS

Kresimir Vican, Venkat Jambunathan, Ehab Negm, Nacer Guergueb, Reinaldo Jose Angulo Yznaga, Halliburton; Francis Eriavbe, Al Dhafra Petroleum

16:00 *End of 3rd Day - Adjourn*

Thursday – May 20th

8:00 Session 15A –Machine Learning – III

8:05 SPWLA-2021-0089

PREDICTION AND ANALYSIS OF GEOMECHANICAL PROPERTIES OF JIMUSAER SHALE USING A MACHINE LEARNING APPROACH

Lianteng Song*, Zhonghua Liu, Chaoliu Li, Congqian Ning, China National Petroleum Corporation; Yating Hu*, Yan Wang, Feng Hong, Wei Tang, Yan Zhuang, Ruichang Zhang, Yanru Zhang, Qiong Zhang, University of Electronic Science and Technology of China (*Lianteng Song and Yating Hu are co-first authors)

8:25 SPWLA-2021-0090

MACHINE LEARNING FOR PRODUCTIVITY PREDICTION IN HETEROGENEOUS CARBONATE GAS RESERVOIRS, CENTRAL SICHUAN BASIN, CHINA

Zuoan Zhao, PetroChina SWOGC; Dali Wang, Schlumberger

8:45 SPWLA-2021-0091

AUTOMATED SELECTION OF INPUTS FOR LOG PREDICTION MODELS USING A NEW FEATURE SELECTION METHOD

Ravi Arkalgud, Helio Flare Ltd; Andrew McDonald and Ross Brackenridge, Lloyd's Register

9:05 SPWLA-2021-0092

AUTO-NAVIGATION ON PRESSURE AND SAMPLING LOCATION IN WIRELINE AND LWD: BIG DATA CHALLENGES AND SOLUTIONS

Mehdi Alipour K, Bin Dai, Jimmy Price, Christopher Michael Jones, Darren Gascooke, Anthony VanZuilekom, Hoda Tahani, Fahad Ahmed, Farrukh Hamza, Radompon Sungkorn and Cameron Rekully, Halliburton

8:00 Session 15B – Nuclear Magnetic Resonance

8:05 SPWLA-2021-0093

RELIABLE QUANTIFICATION OF PORE GEOMETRY IN CARBONATE ROCKS USING NMR AND ELECTRICAL RESISTIVITY MEASUREMENTS FOR ENHANCED ASSESSMENT OF PERMEABILITY AND CAPILLARY PRESSURE

Zulkuf Azizoglu, Artur Posenato Garcia and Zoya Heidari, The University of Texas at Austin

8:25 SPWLA-2021-0094

MEASURING KEROGEN, SOLID ORGANICS, AND OIL PRODUCTION POTENTIALS OF UNCONVENTIONAL SOURCE ROCKS USING SOLID TYPE 20-MHZ NMR TECHNIQUES

Z. Harry Xie, Thomas Gentzis and Humberto Carvajal-Ortiz, Core Laboratories, LP

8:45 SPWLA-2021-0095

NMR DRILL CUTTING ANALYSIS: METHODOLOGY EVALUATION AND OPERATIONAL BEST PRACTICES

Gabriela Singer, Mark Flaum and Songhua Chen, Halliburton; S. Mark Ma, Saudi Aramco

9:05 SPWLA-2021-0096

NMR WETTABILITY INDEX MEASUREMENTS AND METHODS COMPARED ON A VARIETY OF UNCONVENTIONAL SAMPLES

Shaina Kelly and Ron J.M. Bonnie, ConocoPhillips Company; Micheal J. Dick and Dragan Veselinovic, Green Imaging Technologies

9:25 *Break (15 mins)*

9:40 Session 16A – Pulsed Neutron Logging

9:45 SPWLA-2021-0097

DETERMINATION OF RESIDUAL OIL SATURATION IN A WATER AND GAS FLOODED GIANT OIL RESERVOIR USING CORE, CONVENTIONAL AND PULSED NEUTRON LOGS

Mike Davenport, Rufat Guliyev, Kasim Sadikoglu, Pavel Gramin and Adrian Zett, BP Exploration Operating Company

- 10:05** SPWLA-2021-0098 **DERIVING SYNTHETIC BULK DENSITY USING FAST NEUTRON CROSS-SECTION IN A LOG-INTEGRATED APPROACH FROM SLIM PULSED NEUTRON LOGGING IN CASED-HOLE ENVIRONMENT**
Khaled Saleh, Aly Morad, Chiara Cavalleri, Schlumberger; Emad Abdel Hakim, Mohamed Farouk, Eslam Atwa, Mohamed Ameen, Youssif Youssif, Kareem Mamdouh, General Petroleum Company
- 10:25** SPWLA-2021-0099 **AN ENHANCED METHOD FOR CRACK EVALUATION UTILIZING NEUTRON GAMMA TRACER IMAGING LOGGING TECHNOLOGY IN CARBONATE RESERVOIR**
Qian Chen, Feng Zhang, Lili Tian and Xiaoyang Zhang, China University of Petroleum (East China); Xianghui Li, Isotope Research Institute of Henan Academy of Sciences Co.Ltd; Qunwei Fang and Junting Fan, China University of Petroleum (East China)
- 9:40** **Session 16B – Acoustics – II**
- 9:45** SPWLA-2021-0100 **INTRODUCING SONIC IMAGING WITH A SLIM-DIPOLE MEASUREMENT IN HIGH-ANGLE WELLS** Olusegun Akinyose and Rima Ali, Saudi Aramco; Rajeev Kumar and J. Adam Donald, Schlumberger
- 10:05** SPWLA-2021-0101 **ENHANCING WELLBORE LEAK LOCALIZATION WITH CONTINUOUS LOGGING DATA FROM A SONIC SENSOR ARRAY**
Yao Ge, Yadong Wang, Xiang Wu, Ruijia Wang and Freeman Hill, Halliburton
- 10:25** SPWLA-2021-0102 **ROBUST SONIC LOG TRACKING USING A MULTI-RESOLUTION APPROACH**
Ting Lei, Michiko Hamada, Adam Donald and Takeshi Endo, Schlumberger
- 10:45** **Break (15 mins)**
- 11:00** **Session 17A – Geosteering**
- 11:05** SPWLA-2021-0103 **VENDOR-NEUTRAL STOCHASTIC INVERSION OF LWD DEEP AZIMUTHAL RESISTIVITY DATA AS A STEP TOWARD EFFICIENCY STANDARDIZATION OF GEOSTEERING SERVICES**
Mikhail Sviridov, Anton Mosin, Sergey Lebedev, ROGII Inc. and Ron Thompson, Beach Energy Limited
- 11:25** SPWLA-2021-0104 **REAL-TIME 2.5D INVERSION OF LWD RESISTIVITY MEASUREMENTS USING DEEP LEARNING FOR GEOSTEERING APPLICATIONS ACROSS FAULTED FORMATIONS**
Kyubo Noh and Carlos Torres-Verdín, The University of Texas at Austin; David Pardo, UPV/EHU, BCAM, Ikerbasque
- 11:45** SPWLA-2021-0105 **REAL-TIME ENSEMBLE-BASED WELL-LOG INTERPRETATION FOR GEOSTEERING**
Nazanin Jahani, NORCE Norwegian Research Centre; Joaquín Ambía, The University of Texas at Austin; Kristian Fossum, Sergey Alyaev and Erich Suter, NORCE Norwegian Research Centre and Carlos Torres-Verdín, The University of Texas at Austin
- 11:00** **Session 17B – Completion Petrophysics and Reservoir Surveillance**
- 11:05** SPWLA-2021-0106 **LESSONS LEARNED FROM CROSS-VALIDATION OF FIBER OPTICS AND PRODUCTION LOGGING CLUSTER PERFORMANCE ASSESSMENT IN THE UNCONVENTIONAL WELLS**
Yegor Se, Chevron ETC; Michael Sullivan, Vahid Tohidi, Michael Lazorek and, Chevron Canada; Ahmed Attia, Phillip Chen, Ziebel US; Linda Abbassi, Virginie Schoepf, Openfield Technology
- 11:25** SPWLA-2021-0107 **FIELDWIDE DYNAMIC PRESSURE SURVEILLANCE WITH FPWD TECHNOLOGY**
Yon Blanco, Schlumberger; Ben Fletcher and Robert Webber, CNOOC International; Alistair Maguire and Velerian Lopes, Schlumberger
- 11:45** SPWLA-2021-0108 **CASE STUDIES ON MULTI-STRING ISOLATION EVALUATION IN P&A OPERATIONS**
Jun Zhang, Probe; Dan T. Mueller, ConocoPhillips Company; David Bryce, Probe; Tom A. Brockway, ConocoPhillips Company and Fady Iskander, Probe
- 12:05** **Exhibit Break (15 mins)**
- 12:25** **Lunch**

13:25 **Session 18A – Conventional Reservoirs – IV**

13:30 SPWLA-2021-0117 **APPLICATION OF LWD ACOUSTIC DISPERSIVE DATA PROCESSING FOR HIGH-QUALITY SHEAR SLOWNESS LOGS IN SLOW FORMATIONS**
Ruijia Wang, Jiajun Zhao and Taher Kortam, Halliburton

13:50 SPWLA-2021-0118 **SATURATION EXPONENT AS A FUNCTION OF RESERVOIR HETEROGENEITY AND WETTABILITY IN THE TAMBAREDJO OIL FIELD, SURINAME**
Elias R. Acosta, Dunia Technology Solutions; Bhagwanpersad Nandlal, Staatsolie Maatschappij and Ryan Harripersad, Former Petrophysics Trainee at Staatsolie Maatschappij

14:10 SPWLA-2021-0119 **A NEW LOOK AT THE DUAL DEPTH OF INVESTIGATION OF LWD PROPAGATION RESISTIVITY LOGGING**
Gong Li Wang, Dean Homan, David Maggs and David Allen, Schlumberger

13:25 **Session 18B – Formation Fluid Analysis – III**

13:30 SPWLA-2021-0112 **COMPRESSIVE SENSING BASED OPTICAL SPECTROMETER FOR DOWNHOLE FLUID ANALYSIS**
Bin Dai, Christopher Jones, Jimmy Price, Darren Gascooke and Anthony van Zuilekom, Halliburton

13:50 SPWLA-2021-0113 **AUTOMATED WORKFLOW TO INDICATE RESERVOIR CONNECTIVITY THROUGH ASPHALTENE EQUILIBRIUM**
Melanie Jensen, Lalitha Venkataramanan, Li Chen, Sandip Bose, Peter Tilke and Oliver C. Mullins, Schlumberger

14:10 SPWLA-2021-0114 **USING PROXY SIMULATOR FOR RESERVOIR ZONE SELECTION AND REDUCING THE FORMATION TESTER CLEANUP OPERATIONAL TIME**
Andre C. Bertolini, Vanessa Simoes, Marianna Dantas and Patrick Pereira Machado, Schlumberger

14:30 *Break (15 mins)*

14:45 **Session 19A – Unconventional Reservoirs – II**

14:50 SPWLA-2021-0115 **AN ACCURATELY DETERMINING POROSITY METHOD FROM PULSED-NEUTRON ELEMENT LOGGING IN UNCONVENTIONAL RESERVOIRS**
Feng Zhang, Fei Qiu, Qunwei Fang, Xiaoyang Zhang, Hui Zhang, Fangwei Tang and Jilin Fan, China University Of Petroleum (East China)

15:10 SPWLA-2021-0116 **A COUPLED PETROPHYSICAL AND GEOMECHANICAL WORKFLOW TO INTERPRET DIPOLE SONIC VELOCITIES FOR IN-SITU STRESS**
Tom Bratton, Tom Bratton LLC

14:45 **Session 19B – Case Studies – IV**

14:50 SPWLA-2021-0109 **RAPID CROSS-PLOT DISCRIMINATION OF COMMERCIAL POTASH MINERALIZATION – CASE HISTORIES**
Donald G. Hill, Consulting Petrophysicist and E.R. Crain, Petrophysical Advisor and Mentor

15:10 SPWLA-2021-0110 **PETROPHYSICS SKILL SET GUIDELINES FOR INDEPENDENT PETROPHYSICAL CONTRIBUTORS**
Z. Zach Liu and S. Mark Ma, SPWLA Education SIG

15:30 *Closing Remarks*

15:50 *End of 62nd Annual Symposium*