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Core Analysis in a Digital World

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Sunday, Aug 25	
11:00 – 5:00	Optional Golf Event – Pau Golf Club

Monday, Aug 26	
8:00 – 5:00	Registration Desk Open

Short Course Program
Numerical History Matching of SCAL Data; Best Practice
MONDAY, AUGUST
26, 2019

Numerical interpretation of data	
9:00 – 9:10	Welcome
9:10 – 10:40	Numerical Interpretation of Data #5 Presenters: Jos Maas & Jules Reed
10:40 – 11:00	Coffee Break Kindly Sponsored by: AMETEK Chandler Engineering
11:00 – 12:30	Interpretation of Pore Scale Experiments; Alternative Descriptions of Porous Media Flow by Topological Means #5 Presenters: Ryan Armstrong & Steffen Berg
12:30 – 12:35	Closing Remarks
12:35 – 1:30	Lunch Kindly Sponsored by: TOTAL

Short Course Kindly Sponsored by: Thermo Fisher Scientific

Core analysis in a digital world

Technical Program

Monday, August 26, 2018

1:30 - 1:45 **Opening Remarks**

1:45 – 3:15 **Session 1: Core Analysis in a Digital World (1) - Pore Scale**

Chairs: Oliver Lopez and Josephina Schembre-McCabe

SCA001 Pore-scale imaging and determination of relative permeability and capillary pressure in a mixed-wet carbonate reservoir rock at subsurface conditions

Amer M. Alhammedi, Ying Gao, Takashi Akai, Martin J. Blunt, and Branko Bijeljic

SCA002 Density Functional Hydrodynamics in Multiscale Pore Systems: Chemical Potential Drive

Oleg Dinariev, Nikolay Evseev, and Denis Klemin

SCA003 Uncertainty span for relative permeability and capillary pressure by varying wettability and spatiality flow directions utilizing pore scale modelling

Thomas Ramstad, Anders Kristoffersen, and Einar Ebeltoft

3:15 – 3:30 **Exhibitor Presentations (x5)**

3:30 - 3:45 **Coffee Break**

Kindly Sponsored by: AMETEK Chandler Engineering

3:45 – 4:00 **Exhibitor Presentations (x5)**

4:00- 5:30 **Session 2: Improved SCAL Techniques and Interpretation (1)**

Chairs: Derrick Green and Doug Ruth

SCA004 Permeability alteration by salt precipitation: numerical and experimental investigation using X-Ray Radiography

Olivier Lopez, Souhail Youssef, Audrey Estublier, Jostein Alvestad,
Christin Weierholt Strandli

SCA005 Steady-State Two-Phase Flow in Porous Media: Laboratory
Validation of Flow-Dependent Relative Permeability Scaling¹)

Marios S. Valavanides, Matthieu Mascle, Souhail Youssef and Olga
Vizika

SCA006 Improved method for complete gas-brine imbibition relative
permeability curves¹(+

M. Ben Clennell, Cameron White, Ausama Giwelli, Matt Myers,
Lionel Esteban, Michael Cullingford, William Richardson, Gavin
Ward, Matt Waugh, Scott Cole, Ashley Hunt and Peter Bright

5:30 - 9:00

**Opening Reception “Icebreaker Reception” – Restaurant “La belle
Epoque”, Palais Beaumont**

Tuesday, August 27, 2018

8:00 – 5:00 Registration Desk Open

8:30 - 10:00 Session 3: Wettability

Chairs: Steffen Berg and Josephina Schembre-McCabe

SCA007 Workflow for upscaling wettability from the nano- to core-scales #5
Maja Rücker, Willem-Bart Bartels, Tom Bultreys, Marijn Boone, Kamaljit Singh, Gaetano Garfi, Alessio Scanziani, Catherine Spurin, Sherifat Yesufu, Samuel. Krevor, Martin. J. Blunt, Ove Wilson, Hassan Mahani, Veerle Cnudde, Paul F. Luckham, Apostolos Georgiadis and Steffen Berg

SCA008 Is contact angle a cause or an effect? – A cautionary tale) ,
Douglas Ruth

SCA009 The link between microscale contact angle measurements and corescale wettability #5
Chenhao Sun, James McClure, Mehdi, Shabaninejad, Peyman Mostaghimi, Steffen Berg and Ryan T. Armstrong

10:00 – 10:15 Exhibitor Presentations (x5)

10:15 - 10:30 Coffee Break - Kindly Sponsored by: Thermo Fisher Scientific

10:30 – 10:45 Exhibitor Presentations (x5)

10:45 – 12:15 Session 4: Displacement Mechanisms/EOR/IOR (1)

Chairs: Jos Maas and Doug Ruth

SCA010 Effect of fractures on hot solvent injection in viscous oil: a study using HP-HT micromodel #5
Igor Bondino, Gerardo Emanuel Romero, Jean-Philippe Chaulet, Anne Brisset and Marelys Mujica

SCA011 Screening of EOR potential on the pore scale by statistical and topological means #5
Holger Ott, Ahmad Kharrat, Mostafa Borji, Thorsten Clemens, Pit Arnold

SCA012 Dc`na Yf!Z bWjcbU]nX'Q`JWB UbcdUfhWYgZcf`-a dfcj]b[`K Uhf: `ccX
 Ck Yyd`9ZVWbWj]b`6YFYUQbXgdcBYg""**
 Alberto Bila, Jan Åge Stensen, and Ole Torsæter

12:15 - 1:15 Lunch

1:15 – 2:45 Poster Session (Even Numbers)
Chair: Christoph Arns and Ryan Armstrong

2:45 - 3:45 Coffee and Poster Session Break
Coffee Break Kindly Sponsored by: Thermo Fisher Scientific
Poster Session Kindly Sponsored by: Green Imaging Technologies, Inc. and Oxford Instruments

3:45 – 4:00 Exhibitor Presentations (x5)

4:00 – 5:30 Session 5: Pore Scale Imaging and Modelling (1)
Chairs: Hendrik Roler and Steffen Berg

SCA013 Permeability Prediction using multivariant structural regression """,
 Matthew Andrew

SCA014 A fast FFT method for 3D pore-scale rock-typing of heterogeneous rock
 samples via Minkowski functionals and hydraulic attributes """,)
 Han Jiang and Christoph H. Arns

SCA015 Estimation of Gas Condensate Relative Permeability using a Lattice
 Boltzmann Modelling approach ""B #5
 Josephina Schembre-McCabe, Jairam Kamath, Andrew Fager and Bernd
 Crouse

6:00 – 11:00 p.m. Young Professional Event – Pau-Pyrenes, Whitewater Stadium

6:00 – 9:00 p.m. Visit to the Log Calibration Center

Wednesday, August 28, 2018

8:30 – 5:00 **Registration Desk Open**

8:30 – 10:00 **Session 6: Unconventionals and Shales (1)**

Chairs: Ryan Armstrong and Jos Maas

SCA016 Low permeability measurement on crushed rock: insights

Sandra Profice, and Roland Lenormand

SCA017 Towards Relative Permeability Measurements in Tight Gas Formations

Denis Dzhafarov, and Benjamin Nicot

SCA018 Storing CO₂ as solid hydrate in shallow aquifers: Electrical resistivity measurements in hydrate-bearing sandstone

Jarand Gauteplass, Stian Almenningen, and Geir Ersland

10:00 - 10:30 **Coffee Break**

10:30 – 12:00 **Session 7: Pore Scale Imaging and Modelling (2)**

Chairs: Oliver Lopez and Souhail Youssef

SCA019 Multiphase flow imaging through X-ray microtomography: Reconsideration of capillary end-effects and boundary conditions

Franck Nono, Peter Moonen, H el ene Berthet and Richard Rivenq

SCA020 Local Capillary Pressure Estimation Based on Curvature of the Fluid Interface – Validation with Two-Phase Direct Numerical Simulations

Takashi Akai, Branko Bijeljic, and Martin Blunt

SCA021 Determination of Critical Gas Saturation by Micro-CT

Steffen Berg, Ying Gao, Apostolos Georgiadis, Niels Brussee, Ab Coorn, Hilbert van der Linde, Jesse Dietderich, Faruk Omer Alpak, Daniel Eriksen, Miranda Mooijer-van den Heuvel, Jeff Southwick, Matthias Appel, Ove Bj orn Wilson

12:00 - 1:00

Lunch

1:00 – 2:00

**Session 8: Improved SCAL Techniques and Interpretation (2)
- NMR**

Chairs: Stefano Pruno and Matthias Appel

SCA022

Inverted bucket centrifugation with fluorinated oils and its applications to T2 cut-offs

Ben Anger, Stefan Hertel, Keith Love, Michael Ehiwario, Matthias Appel

SCA023

A New Apparatus for Coupled Low-field NMR And Ultrasonic Measurements in Rocks at Reservoir Conditions

Paul R. J. Connolly, Joël Sarout, Jérémie Dautriat, Eric F. May, Michael L. Johns

2:00 – 3:30

Poster Session (Odd Numbers)

Chair: Lesley James and Jules Reed

3:30 – 4:30

Coffee and Poster Session Break

Coffee Break Kindly Sponsored by: Thermo Fisher Scientific

Poster Session Kindly Sponsored by: Green Imaging Technologies, Inc and Oxford Instruments

4:30 - 5:30

Session 9: Core Analysis in a Digital World (2)

Chairs: Olga Vizika-Kavvadias and Christopher Arns

SCA024

Defining a sample heterogeneity cut-off value to obtain representative Special Core Analysis (SCAL) measurements

Jos G. Maas, Niels Springer, and Albert Hebing

SCA025

Digital core repository coupled with machine learning as a tool to classify and assess petrophysical rock properties

Vanessa Hébert, Thierry Porcher, Valentin Planes, Marie Léger, Anna Alperovich, Bastian Goldluecke, Olivier Rodriguez and Souhail Youssef

6:30 – 11:00

Gala Dinner – At Villa Navarre

Kindly Sponsored by: iRock Technologies

Thursday, August 29, 2018

8:30 – 4:30 Registration Desk Open

8:30 - 10:00 Session 10: Unconventionals and Shales (2)

Chairs: Matthias Appel and Olga Vizika-Kavvadias

SCA026 Using Capillary Condensation and Evaporation Isotherms to Investigate Confined Fluid Phase Behavior in Shales

Elizabeth Barsotti, Evan Lowry, Mohammad Piri, and Jin-Hong Chen

SCA027 Methane Isotherms and Magnetic Resonance Imaging in Shales &

M. J. Dick, D. Heagle, D. Veselinovic and D. Green

SCA028 Dielectric Polarisation in Partially Saturated Shales

Paul R.J. Connolly, Matthew Josh, Keelan O'Neill, Eric F. May, Michael L. Johns

10:00 - 10:30 Coffee Break

10:30 – 12:00 Session 11: Displacement Mechanisms/EOR/IOR (2)

Chairs: Souhail Youssef and Hendrik Roler

SCA029 CT-scan in-situ investigation of waterflood front instabilities during immiscible displacements: effect of viscosity contrast and flow rate

Matthieu Mascle, Elisabeth Rosenberg, Berit Roboele, Espen Kowalewski, and Souhail Youssef

SCA030 Core-scale sensitivity study of CO₂ foam injection strategies for mobility control, enhanced oil recovery, and CO₂ storage &

Zachary Paul Alcorn, Sunniva B. Fredriksen, Mohan Sharma, Tore Føyen, Connie Wergeland, Martin A. Fernø, Arne Graue, and Geir Ersland

SCA031 New laboratory core flooding experimental system for EOR surfactant screening, especially for foam

Xuesong Li, and Matthias Appel

12:00 – 12:30 Business Meeting

12:30 - 1:30 Lunch

1:30 – 3:00 Session 12: Laboratory Core Analysis

Chairs: Stefano Pruno and Matthias Halisch

SCA032 A new CEC measurement proxy using high-frequency dielectric analysis of crushed rock

M. Rebecca Stokes, Z. Elton Yang, Prince Ezebuio, and Timothy Fischer

SCA033 Gas Slippage in Partially Saturated Tight Rocks and During Drainage

Alexandra Amann-Hildenbrand, Mohammadebrahim Shabani, Thomas Hiller, Norbert Klitzsch, Norbert Schleifer, and Bernhard M. Krooss

SCA034 Modeling Permeability in Carbonate Rocks

Moustafa Dernaika, Shehadeh Masalmeh, Bashar Mansour, Osama Al-Jallad, and Safouh Koronfol

3:00 – 3:30 Coffee Break

3:30 - 4:30 Session 13: Improved SCAL Techniques and Interpretation (3) - NMR

Chairs: Matthias Appel and Derrick Green

SCA035 Direct Magnetic Resonance Measurement of Average Pore Size

Florin Marica, Armin Afrough, Derrick Green, Laura Romero-Zeron, and Bruce Balcom

SCA036 Two-Phase Fluid Flow Experiments Monitored by NMR

Thomas Hiller, Gabriel Hoder, Alexandra Amann-Hildenbrand, Norbert Klitzsch, and Norbert Schleifer

Alternate Orals

SCA037	<p>Transport properties of the Cobourg Limestone: A benchmark investigation</p> <p>C. A. Davy, Zhazha Hu, A.P.S. Selvadurai, Jop Klaver, M.-C. Willemetz, F. Agostini, F. Skoczylas, Jan Dewanckele, Alexandra Amann-Hildenbrand and Roland Lenormand</p>
SCA038	<p>Pore-scale experimental investigation of in-situ wettability and displacement mechanisms governing WAG in oil-wet carbonates</p> <p>Ziqiang Qin, Maziar Arshadi, and Mohammad Piri</p>
SCA039	<p>High-resolution inline density measurements: insight on multiphase flow and transport phenomena in porous media</p> <p>Jelayne Falat, Adam Fehr, Ali Telmadarreie, and Steven Bryant</p>
SCA040	<p>Pore-scale experimental study of carbonated water injection in an oil-wet carbonate: an improved insight into wettability alteration and displacement mechanisms</p> <p>Ziqiang Qin, Maziar Arshadi, and Mohammad Piri</p>
SCA041	<p>The digital rock analysis of biogenically induced reservoir heterogeneities in Cretaceous reservoirs of Saudi Arabia</p> <p>Ivan Deshnenkov, and Camilo Polo</p>
SCA042	<p>Novel technique to measure mutual bulk fluid diffusion using NMR 1-D gradient</p> <p>Son Dang, Carl Sondergeld, and Chandra Rai</p>

SCA043	<p>A Surface Complexation Model of Alkaline-Smart Water Electrokinetic Interactions in Carbonates¹, Moataz Abu-Al-Saud, Amani Al-Ghamdi, Subhash Ayirala, and Mohammed Al-Otaibi</p>
SCA044	<p>Effects of gas pressurization on the interpretation of NMR hydrocarbon measurements in organic rich shales² & S) Son Dang, Carl Sondergeld, and Chandra Rai</p>