

PREFACE

The **2019 International Symposium of the Society of Core Analysts (SCA)** was held in Pau, France between August. 26th and 30th. The theme for the Symposium in 2018 was “*Core Analysis in a Digital World*”. The symposium was attended by representatives from industry, academia and organizations and vendors. With a large variety of vendors, technical veterans, industry leaders, and rising young professionals, the Annual meeting of the Society of Core Analysts is a great opportunity for professional interaction, to share ideas, innovations, knowledge, best practices, products and services.

The collection of articles published in the SHS Web of conferences consists of 23 articles prepared for oral presentations. Twenty-one (21) proceedings presented in this symposium, published in *Petrophysics* or other journals, and (47) posters are not included in this collection. Here is the list of articles with full text available in www.scaweb.org and/or other journals.

Papers presented at the 2018 SCA Symposium not submitted / published in other journals

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

A. M. Alhammadi, Y. Gao, T. Akai, M. J. Blunt, and B. Bijeljic

Workflow for upscaling wettability from the nano- to core-scales

M. Rücker, W.-B. Bartels, T. Bultreys, M. Boone, K. Singh, G. Garfi, A. Scanziani, C. Spurin, S. Yesufu, S. Krevor, M.. J. Blunt, O. Wilson, H. Mahani, V. Cnudde, P. F. Luckham, A. Georgiadis and S. Berg

The link between microscale contact angle measurements and corescale wettability

C. Sun, J. McClure, M. Shabaninejad, P. Mostaghimi, S. Berg and R. T. Armstrong

Effect of fractures on hot solvent injection in viscous oil: a study using HP-HT micromodel

I. Bondino, G. E. Romero, J.-P. Chaulet, A. Brisset and M. Mujica

Screening of EOR potential on the pore scale by statistical and topological means

H. Ott, A. Kharrat, M. Borji, T. Clemens, and P. Arnold

Estimation of Gas Condensate Relative Permeability using a Lattice Boltzmann Modelling approach

J. Schembre-McCabe, J. Kamath, A. Fager, and B. Crouse

Low permeability measurement on crushed rock: insights

S. Profice and R. Lenormand

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

F. Nono, P. Moonen, H. Berthet and R. Rivenq

Determination of Critical Gas Saturation by Micro-CT

S. Berg, Y. Gao, A. Georgiadis, N. Brussee, A. Coorn, H. van der Linde, J. Dietderich, F. O. Alpak, D. Eriksen, M. Mooijer-van den Heuvel, J. Southwick, M. Appel and O. B. Wilson

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

P. R. J. Connolly, J. Sarout, J. Dautriat, E. F. May, M. L. Johns

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

J. G. Maas, N. Springer, and A. Hebing

Dielectric Polarisation in Partially Saturated Shales

P. R. J. Connolly, M. Josh, K. O'Neill, E. F. May, M. L. Johns

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

M. Mascle, E. Rosenberg, B. Roboele, E. Kowalewski and S. Youssef

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

X. Li, and M. Appel

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

M. R. Stokes, Z. E. Yang, P. Ezebuio, and T. Fischer

Gas Slippage in Partially Saturated Tight Rocks and During Drainage

A. Amann-Hildenbrand, M. Shabani, T. Hiller, N. Klitzsch, N. Schleifer, and B. M. Krooss

Modeling Permeability in Carbonate Rocks

M. Dernaika, S. Masalmeh, B. Mansour, O. Al-Jallad, and S. Koronfol

Direct Magnetic Resonance Measurement of Average Pore Size

F. Marica, A. Afrough, D. Green, L. Romero- Zeron and B. Balcom

Transport properties of the Cobourg Limestone: A benchmark investigation

C. A. Davy, Z. Hu, A.P.S. Selvadurai, J. Klaver, M-C. Willemetz, F. Agostini, F. Skoczylas, J. Dewanckele, A. Amann-Hildenbrand and R. Lenormand

Pore-scale experimental investigation of in-situ wettability and displacement mechanisms governing WAG in oil-wet carbonates

Z. Qin, M. Arshadi, and M. Piri

Pore-scale experimental study of carbonated water injection in an oil-wet carbonate: an improved insight into wettability alteration and displacement mechanisms

Z. Qin, M. Arshadi, and M. Piri

Papers presented in Poster Sessions

Causal Protocols to assess the Viability of Native State or Restored State Preparation

J. Reed, S. Pruno, I. Zubizarreta, R. S. Johansen

Validation of Simulated Relative Permeability Estimates in Very Low Permeability Rocks

N. Drenzek, R. Antler, S. Zhang, J. Howard

Composite Core – An Experimental Approach in Evaluating Ordering Criteria for Individual Cores in Composite

E. Stripal and L. James

Impact of Brine Spontaneous and Forced imbibition on effective permeability in gas shales

D. Dzhabarov and B. Nicot

A new approach to measure the wettability of porous media under different saturation conditions by Temperature Sensitivity of Nuclear Magnetic Resonance Relaxation Time

H. T. Kwak and J. Gao

Wettability - Combine the macroscopic approach to pore-scale analysis

P. Andriamananjaona, P. Moonen, M. Chameris, and R. Rivencq

Lithologically Controlled Core-Log-Geocell Integration Using Probabilistic Multivariate Clustering Analysis and an Expert System

A. A. Curtis, E. Eslinger, S. Nookala, and F. Boyle

An experimental and digital investigation into the impact of diagenesis above and below the oil-water contact

F. Mujica, L. A. James, C. F. Berg and D. H. C. Wilton

Optimizing Magnetic Measurements on Drill Cuttings for Reservoir Characterization

M. Bik and D. K. Potter

Automated Determination of Formation Porosity from Drill Cuttings using Nuclear Magnetic Resonance

J. Billiotte, M. Ammar, K. Bondabou and J. Breviere

Hele-Shaw Setup for Investigation of two-phase flow in fractures

M. Raphaug, P. Bergmo, A. Lavrov, B. Bjørkvik, C. Ringstad

A Review of Effects of Bedding Plane and Anisotropy on Indirect Tensile Strength Test of Rocks

D. Moronkeji, R. Shouse and R. Lew

Pore scale visualization of Improved Sweep Efficiency During Fines Assisted Low-salinity Waterflooding Using Micro-CT Imaging

Y. Wang, M. Yu and F. Hussain

New method for characterising the nano- to macro-scale voidage within black shale and for modelling shale gas recovery efficiency

G. P. Matthews, K. L. Jones and G. M. Laudone

Pore Structure Impact on Polymer Retention in Carbonate Cores

A. M. AlSofi, J. Wang, A. M. Boqmi

Automated Quantitative Micromodel Image Analysis Applied to High- Pressure CO₂ Foam Injections

T. L. Føyen, J. Gauteplass, Ø. Eide, M. A. Fernø

Reducing Sample Heating During NMR Measurements

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

Modeling Carbonate Microfractures with the Lattice Boltzmann method

A. Fager, B. Crouse, D. Freed, J. Schembre-McCabe and N. Hurley

Microscale interactions of EOR chemicals at the crude oil-water interface and their implications for oil recovery

Z. Li, Z. Xu, S. Ayirala and A. AlSofi

Robust and Efficient Evaluation of Oil/Water Contact Angles and Wettability Alteration Using a Modified Washburn Method

A. B. Fuseni, Z. Kaidar and A. M. AlSofi

In-situ Characterization of Mixed Wettability in Carbonate Rock: A Cryo- BIB-SEM Approach

A. Gmira, S. M. Enezi and A. A. Yousef

Core-Based Diagnostics of Sanding Prone Pay Zones in the Ordovician Sarah Sandstone Reservoir, Northern Saudi Arabia

M. S. Ameen, A. Y. Coulibaly, A. Rees, and L. Jihong

A Pore-Level Analysis on Residual Oil Structure post Secondary and Tertiary Displacements

L. AlMaskeen, J. Felix, A. AlAseeri and A. AlSofi

Application of digital petrophysics to Brazilian pre-salt carbonate rock: comparative study on two different facies

T. F. Faisal, R. Victor, R. Surmas and I. Bondino

Digital Core-Enabled High-Resolution Formation Evaluation via Coupled Physics and Data Analytics

N. Drenzek, R. Antle, H. Jiang and S. Misra

Metre scale gas-brine coreflood investigation of plume mobility and trapping

M. B. Clennell, C. White, A. Giwelli and M. Myers

The role of heterogeneous wettability for hydrocarbon production from imbibition in a mixed multiporous carbonate reservoir rock investigated by magnetic resonance techniques

J. Gao and H. T. Kwak

Adsorption isotherm for wettability evaluation

D. Korobkov and V. Pletneva

Petrophysical Parameter Prediction Utilizing Limited Core Training Data

A. M. Naranjo Pacheco and D. K. Potter

Effects of Temperature on Fines Migration during Low Salinity Water Injection

Y. Wang, M. Yu, F. Hussain

Methane Production through Combined Depressurization + Hydrate Swapping method in the Sandy Porous Medium under Permafrost Temperature Conditions

J. S. Pandey and N. von Solms

Impact of Micro-Emulsion Phase Behavior on Near Wellbore Associated Emulsification Properties during Chemical Enhanced Oil Recovery

M. M. Alsinan, D. Salomon Marques, H. T. Kwak and A. B. Fuseni

Combination of computed X-ray tomography and triaxial geomechanical tests as a tool for fracture propagation prediction

E. Puskarczyk, P. I. Krakowska and M. Dohnalik

Slip-flow in tight carbonate for permeability estimation using 3D digital pore space

P. Krakowska, P. Madejski, E. Puskarczyk and M. Habrat

A Fast and Direct RCAL Methods on As-Received Brazilian Pre-salt Carbonate Cores

L. Goncalves; P. C. Rocha Da Silva Junior, G. Rosinski Ribeiro; B. C. Camilo Dos Santos; W. A. Trevisan

Comparing the porous plate technique and the evaporation technique for establishing initial water saturation

L. Sigalas, H. D. Holmslykke, D. Olsen

Digital Rock Model based on nCT images as an input to Deep Learning for permeability simulation

E. Puskarczyk, P. I. Krakowska, M. Habrat, P. Madejski, and M. Jędrychowski

Simulation and Experimental Measurements of Internal Magnetic Field Gradients and NMR Transverse Relaxation Times (T₂) in Sandstone Rocks

P. R. J. Connolly, W. Yan, D. Zhang, M. Mahmoud, M. Verrall, M. Lebedev, S. Iglauer, P. J. Metaxas, E. F. May and M. L. Johns

Computed X-ray tomography data in multiple linear regression analysis on tight rocks for permeability estimation

P. Krakowska, E. Puskarczyk, P. Madejski, M. Habrat and M. Dohnalik

Laboratory core analysis of potentially in-situ recovery amenable sandstone-hosted uranium deposits in the Morrison Formation/New Mexico/USA

M. J. Zauner, M. Halisch and A. Weller

Core Fracture Segmentation in CT Images by Transfer Learning

R. Antle and M. Dreese

Study of the Effects of NaCl Reduction in oil Recovery during the Calibrated Water Injection into Dolomite Rocks

C. A. Rivas, A. Winter and O. V. Trevisan (*In memoriam*)

Portable XRF Spectrometer as a Formation Evaluation and Geosteering Tool applied in the Polish Permian Basin

R. Skupio, U. Zagorska, B. Kubik, S. Kowalska, K. Wolanski

Emulsification under different mixing conditions

P. Arnold, A. Kharrat, B. Schnöpf and H. Ott

Pore-scale characterization of Norwegian Continental Shelf Reservoir based on Digital Rock Simulation

F. Zekiri, P. Arnold, J. Steckhan and H. Ott

The Impact of Microbial Growth on Hydraulic Properties in Saturated Porous Media

H. Ott, N. Hassannayebi, F. Enzmann, J. Schritter, M. Fernø and A. Loibner

Improving oil recovery by injecting alcohol-treated CO₂

S. Saira, E. Ajoma and F. Hussain