



Technical
University of
Denmark



DHRTC Technology Conference 2017

Programme



14 November

11:00 – 11:30

Welcome,
Rasmus Larsen, Provost, Technical University of Denmark

Recovering oil & gas resources in the Danish North Sea,
Patrick Gilly, Managing Director, Maersk Oil

11:30 – 12:30

Making progress, achieving change: How do studies make a difference? How can we avoid wasting time and resources?
Mark Bentley, Training Director, AGR TRACS International

12:30 – 13:30

Lunch

13:30 – 15:00

Parallel Sessions - Presentation and discussion

1) EOR/IOR

Chairs:

Karen Feilberg, Senior Researcher, DHRTC
Charlotte Laurentzius, Programme Manager, DHRTC

Keynote:

13:30
“Fifty years of solvent flooding experience in the US and a peek into the future”
Larry Lake, Professor, Department of Petroleum and Geosystems Engineering
The University of Texas

Presentation of Demonstration model:

14:05
Advanced Water Flooding 1,
Hans Horikx, Advisor, DHRTC
Charlotte Laurentzius, Programme Manager, DHRTC

Technical presentation:

14:20
“Emulsion formation for EOR applications” *Muhammad Waseem Arshad, DTU*

14:40
“Decoding the water flooding processes from produced water composition – A case study from the Halfdan chalk oil field”
Niels H. Schovsbo, GEUS

2) Maintenance

Chairs:

Simona Miraglia, Assistant Professor, Department of Civil Engineering, Aalborg University
Kitt Ravnkilde, Programme Manager, DHRTC

Keynote:

13:30
“Challenges in safe and efficient facility operation”
Nina Hoegh Jensen, Production Operations Excellence Manager, Maersk Oil

Presentation of Demonstration model:

14:05
Cost Transformation 2
Kitt Ravnkilde, Programme Manager, DHRTC
Pernille Raahauge, Project Manager, DHRTC

Technical presentation:

14:20
“Modular maintenance instructions”
Kristoffer Vandrup Sigsgaard & Giacomo Montagner, DTU

14:40
“Fact based optimization of maintenance”
Andreas Proschowsky & Kim Bo Kristiansen, DTU

15:00 – 15:30

Break

15:30 – 16:30

Parallel Sessions - Continued

<p>1) EOR/IOR <i>Chairs:</i> Karen Feilberg, Senior Researcher, DHRTC Charlotte Laurentzius, Programme Manager, DHRTC</p> <p>Technical Presentations: 15:30 “Experimental study of the short- and long-term behaviour of the RJD laterals under static and dynamic reservoir conditions” <i>Maiya Medetbekova, DHRTC</i></p> <p>15:50 “Porosity effects of electrostatic forces in saturated mineral powders” <i>Ida L. Fabricius, DTU</i></p> <p>16:10 “An integrated experimental approach to quantify the oil recovery potential of seawater and low-salinity seawater in North Sea chalk oil reservoirs “ <i>Stefano Tagliaferri, DHRTC</i></p>	<p>2) Maintenance <i>Chairs:</i> Simona Miraglia, Assistant Professor, Department of Civil Engineering, Aalborg University Kitt Ravnkilde, Programme Manager, DHRTC</p> <p>Technical Presentations: 15:30 “Experimental investigation on the effect of seawater ingress on the corrosion behaviour of production tubings” <i>Riccardo Rizzo, DTU</i></p> <p>15:50 “Systematic investigation of scales and corrosion on production tubings” <i>Abhijeet Yadav, DTU</i></p> <p>16:10 “Kinetics of scale formation in oil and gas production” <i>Petter Lomsøy, DTU</i></p>
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16:30 – 16:45

Break

16:45 – 17:45

Oil & Gas evolution – how quickly can we adapt to the changing environment?, Stuart Leigh Bronson, Head of Procurement and Supply Chain, Maersk Oil

17:45 – 19:45

Poster Session

20:00 –

Dinner

15 November

08:30 – 10:00

Parallel Sessions - Presentation and discussion

3) Reservoir characterisation

Chairs:

Ole Rønø Clausen, Associate professor, Department of Geoscience, Aarhus University

Ulla Hoffmann, Programme Manager, DHRTC

Keynote:

08:30

“Do we know enough about the impact of the relatively small-scale features in our reservoir characterisation?” *Patrick Corbett, BG Group Professor of Petroleum Geoengineering, Heriot Watt University*

Presentation of Demonstration model:

09:05

Tight Reservoir Development 1
Birgitte Dalsgaard, Innovation Engineer, DHRTC

Ulla Hoffmann, Programme Manager, DHRTC

Technical Presentation:

09:20

“Spatial distribution of silica in Danian chalk onshore Denmark – towards an improved understanding of the Ekofisk Formation as a reservoir”

Kasper Høj Blinkenberg, KU

09:40

“Fracture Characterization and Modelling in the Kraka Field” *Tala Maria Aabø, DHRTC*

4) Integrity and Reliability

Chairs:

Rune Brincker, Professor, Department of Civil Engineering, DTU

Henning Hartmann, Programme Manager, DHRTC

Keynote:

08:30

“Resilience and Assets Integrity Management” *Michael Faber, Professor, AAU*

Presentation of Demonstration model:

09:05

Cost Transformation 3
Henning Hartmann, Programme Manager, DHRTC

Technical Presentation:

09:20

“Self-healing cement”
Alberto Scoma, AU

09:40

“Risk based inspection planning for sub-sea well integrity management”
Simona Miraglia, AAU

10:00 – 10:30

Break

10:30 – 11:30

Parallel Sessions - Continued

3) Reservoir characterisation

Chairs:

Ole Ronø Clausen, Associate professor, Department of Geoscience, Aarhus University

Ulla Hoffmann, Programme Manager, DHRTC

Technical Presentations:

10:30

“Outcrop analogue on the Maastrichtian chalk of Stevns Klint, Denmark : An integrated approach between high resolution seismic, geology and photogrammetry”

Mattia Tagliavento, KU

10:50

“Fluid migration through the Chalk Group: examples from 3D seismic data”
Florian Smit, DHRTC

11:10

“Evolution of the petrophysical and geomechanical properties of chalk along a water- to hydrocarbon-bearing transect of a reservoir and impacts on production-related rock deformation (Kraka Field).”

Frederic Amour, DHRTC

4) Integrity and Reliability

Chairs:

Rune Brincker, Professor, Department of Civil Engineering, DTU

Henning Hartmann, Programme Manager, DHRTC

Technical Presentations:

10:30

“Aspects of structural monitoring - Potentials and challenges”

Evangelos Katsanos, DTU

10:50

“OMA-based stress estimation in friction systems” *Marius Glindtved Tarpø, AU & Tobias Friis, DTU*

11:10

“The connection between wave kinematics and wave loads in non-breaking and breaking waves”

Erik Damgaard Christensen, DTU

11:30 – 12:30

Lunch

12:30 – 14:00

Parallel Sessions - Presentation and discussion

5) Reservoir modelling/simulation

Chairs:

Alexander Shapiro, Associate Professor, DTU Chemical Engineering

Anders Bak-Jensen, Programme Manager, DHRTC

Keynote:

12:30

“Practical aspects of reservoir simulation for field development support in Danish chalk fields.”

Henrik Olsen, Senior Principal Reservoir Engineer, Maersk Oil

Presentation of Demonstration model:

13:05

Advanced Water Flooding 2

Paloma Alvarez Gallego, Reservoir Engineer, DHRTC

Anders Bak-Jensen, Programme Manager, DHRTC

Technical Presentation:

13:20

“High porosity due to compaction-inhibiting flexure” *Kenni Dinesen Petersen, AU*

13:40

“Oil production optimization by combination of matlab and eclipse (E300)”

Steen Hørsholt, DTU

6) Topside processes

Chairs:

Zhenyu Yang, Associate Professor, Department of Energy Technology, Esbjerg

Erik Bek-Pedersen, Programme Manager, DHRTC

Keynote:

12:30

“Water flooding: Still challenging after a century of practice.”

Roelien Broos, Team Lead Improved Oil Recovery, Shell Global Solutions International

Presentation of Demonstration model:

13:05

Cost Transformation 1

Erik Bek-Pedersen, Programme Manager, DHRTC

Technical Presentation:

13:20

“A project on innovative pipeline concepts” *Jørgen Gross-Petersen, DHRTC*

13:40

“Knowledge management for increasing water injection availability”

Jing Wu, DTU

14:00 – 14:30

Break

14:30 – 15:30

Parallel Sessions - Continued

<p>5) Reservoir modelling/simulation</p> <p><i>Chairs:</i> Alexander Shapiro, Associate Professor, DTU Chemical Engineering Anders Bak-Jensen, Programme Manager, DHRTC</p> <p>Technical Presentations:</p> <p>14:30 “Uncertainties in the mechanistic models of the modified brine water-flooding of chalk” <i>Ali A. Eftekhari, DHRTC</i></p> <p>14:50 “The problem of short-circuiting in deformable fractured reservoirs” <i>Saeed Salimzadeh, DHRTC</i></p> <p>15:10 “Understanding controls on fracture geometry using a geomechanical model of fracture propagation” <i>Michael Welch & Mikael Lüthje, DHRTC</i></p>	<p>6) Topside processes</p> <p><i>Chairs:</i> Zhenyu Yang, Associate Professor, Department of Energy Technology, Esbjerg Erik Bek-Pedersen, Programme Manager, DHRTC</p> <p>Technical Presentations:</p> <p>14:30 “Physical-stochastic (Greybox) modeling and optimal control of membrane filtration processes in oil recovery operations” <i>Goran Goranovic, DTU</i></p> <p>14:50 “Grey-box modeling of an offshore deoiling hydrocyclone system” <i>Mads Valentin Bram, AAU</i></p> <p>15:10 “First pilot demonstration of alarmtracker” <i>Thomas Martini Jørgensen, DHRTC</i></p>
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15:30 – 16:00

Closure Remarks, Troels Albrechtsen, Senior Vice President, Maersk Oil

Mark Bentley, Training Director, AGR TRACS International

Time: Tuesday 14 November 11.30-12.30

Plenum Speaker



Mark obtained a PhD in Geology at the University of Wales and joined Shell in 1986, initially as a petroleum engineer and subsequently as a geoscientist in the UK, Oman and The Netherlands (Shell Research). In 1998 he moved to TRACS, a consulting and training company, now part of AGR, where he currently directs training.

He has evaluated fields in most of the major petroleum basins of the world, actively publishes and presents in the fields of reservoir modelling and uncertainty-handling, and is co-author of 'Reservoir Model Design'.

His interest in this conference stems from experiences in study teams, where he has experienced technology successes but also failures. The reasons which distinguish the two are the subject of his opening presentation.

Mr. Bentley will give a presentation on:

"Making progress, achieving change – How do studies make a difference? How can we avoid wasting time and resources?"

Stuart Leigh Bronson, Head of Procurement and Supply Chain, Maersk Oil

Time: Tuesday 14 November 16.45-17.45

Plenum Speaker



When a business is not living up to its true potential, it is not uncommon for the accumulation of many small problems to end up killing the company. My great passion is turning around businesses that are not being as great as they can be. I help businesses. That has included oil and gas, property, seafood and entertainment companies, to identify the right way forward, and most importantly, deliver the necessary changes to be successful again. I know that no single approach is the right one for every business and situation, and so I draw on what other industries have done before, and look to see how we can learn from them.

My educational background is as an economist (MSc UCL London, and BSc London School of Economics), and Chartered Accountant. I have a background in M&A, and a track record of delivering business turnarounds in various industries; including with Maersk Oil since 2011.

Mr. Bronson will give a presentation on:

“Oil & Gas evolution – how quickly can we adapt to the changing environment?”

Larry Wayne Lake, Professor, Department of Petroleum and Geosystems Engineering, The University of Texas

Time: Tuesday 14 November 13.30-14.05

Keynote speaker: Session 1 - EOR



Larry W. Lake is a professor at the Department of Petroleum and Geosystems Engineering at UT Austin and director of the Center for Petroleum Asset Risk Management. He holds B.S.E and Ph.D. degrees in Chemical Engineering from Arizona State and Rice Universities. He is the author or co-author of more than 100 technical papers, the editor of 3 bound volumes and author or co-author of four textbooks.

He was chairman of the PGE department twice. He currently holds the Shahid and Sharon Chair in Petroleum Engineering. Furthermore, he has twice been an SPE distinguished lecturer. He is a member of the US National Academy of Engineers and has won the 1996 Anthony F. Lucas Gold Medal of the SPE; the 1999 Dad's Award for excellence in teaching undergraduates at UT Austin and the 1999 Hocott Award in the College of Engineering for excellence in research. He is also a member of the 2001 Engineering Dream Team awarded by the Texas Society of Professional Engineers.

Mr. Lake will give a presentation on:

“Fifty Years of Solvent Flooding Experience in the US and a Peek into the Future”

Nina Hoegh Jensen, Production Operations Excellence Manager, Maersk Oil

Time: Tuesday 14 November 13.30-14.05

Keynote speaker: Session 2 - Maintenance



Mrs. Nina H. Jensen has a background in mechanical engineering supplemented with further education within business management. She has been in the oil and gas industry since 2000.

Her career in the oil and gas industry started in the verification and third party inspection arena. However, she has mainly been within operations covering the disciplines construction, maintenance and production. 10 years of her career has been within operations in the Al Shaheen field in Qatar where she has held leadership positions both onshore and offshore. A number of years, during her career she has been working offshore. Lately as Offshore Installation Manager in the Gulf in the Middle East.

Mrs. Jensen brings extensive experience in safe and efficient operation of offshore facilities that supports great ability to bridge between the theoretical conclusions and the practical challenges.

Mrs. Jensen will give a presentation on:
“Challenges in safe and efficient facility operation”

Patrick Corbett, BG Group Professor of Petroleum Geoengineering, Heriot Watt University

Time: Wednesday 15 November 08.30-09.05

Keynote speaker: Session 3 - Reservoir characterisation



Patrick Corbett graduated in 1977 with a degree in Geology followed by a MSc in Micropalaeontology in 1978. From 1978, Patrick worked for 11 years in the industry with various positions in international exploration and development geoscience for Unocal in the UK, Netherlands and Indonesia.

Since coming to Heriot-Watt University in 1989, his research focus has been on the integration of geoscience and engineering, and he obtained a PhD in Petroleum Engineering (Heriot-Watt University - 1993) and a DSc “Petroleum Geoengineering” (Heriot-Watt University - 2006). Current research areas include permeability anisotropy modelling, well test interpretation, dynamic upscaling, and genetic petrophysics. From 2012-13 he took up a Visiting Professorship at UFRJ in Rio as the BG Group International Professor of Carbonate Petroleum Geoengineering. He was the AAPG Distinguished Lecturer in Europe for 2013-14 on Carbonate Geoen-
geering which was the last time he visited Denmark.

Mr. Corbett will give a presentation on:

“Do we know enough about the impact of the relatively small-scale features in our reservoir characterisation?”

Michael Faber, Professor in Risk Informed Decision Support for Structures, Aalborg University

Time: Wednesday 15 November 08.30-09.05

Keynote speaker: Session 4 - Integrity and Reliability



Michael Havbro Faber is a Professor in Risk Informed Decision Support for Structures at the Department of Civil Engineering at Aalborg University, Denmark and leader of structural risks and safety at DHRTC. From 2011-2015 he was head of the Department of Civil Engineering at DTU, Denmark and from 2000-2011 he was tenured professor at ETH, Zurich, Switzerland.

His research interests are directed on applied decision theory in engineering. Application areas include civil, naval, offshore, aeronautical engineering, global risks as well as management of natural hazards. His industrial experience mostly originates from COWI, Denmark, Det Norske Veritas, Norway and Matrisk GmbH, Switzerland.

He has taken leadership in several international committees, including the Joint Committee on Structural Safety (JCSS) and the WEF; Global Expert Network on Risk and Resilience. He is a Research Fellow of the Global Risk Forum in Davos, and is a member of the Danish Academy of Technical Sciences (ATV).

Mr. Faber will give a presentation on:
“Resilience and Assets Integrity Management”

Henrik Olsen, Senior Principal Reservoir Engineer, Maersk Oil

Time: Wednesday 15 November 12.30-13.05

Keynote speaker: Session 5 - Reservoir modelling/simulation



Mr. Olsen has more than 30 years of experience in reservoir engineering and reservoir simulation, mentoring younger engineers and defining workflows and processes within the reservoir engineering community. His key experience is within field development planning, with some exposure to data room evaluations. Reservoir engineering skills comprise reservoir engineering evaluations at many levels, particularly construction and history matching of simulation models for a variety of reservoir types, thereby enabling characterisation of fluid and reservoir properties to identify and optimize efficient development options. Recently, also developed procedures to integrate subsurface uncertainties into probabilistically derived recovery ranges.

He has acquired an excellent knowledge of computer applications and plays a key role in selection of software for reservoir studies. Mr. Olsen has previously worked as a consultant to oil companies and government authorities in Denmark and abroad within a wide range of reservoir engineering disciplines.

Mr. Olsen will give a presentation on:

“Practical aspects of reservoir simulation for field development support in Danish chalk fields”

Roelien Broos, Team Lead Improved Oil Recovery, Shell Global Solutions International

Time: Wednesday 15 November 12.30-13.05

Keynote speaker: Session 6 - Topside processes



Mrs. Roelien Broos started working in Innovation, Research and Development in 2014, after spending 19 years in various Shell upstream developments in the UK, Oman, Australia, Malaysia and China. As the lead for Improved Oil Recovery Research, she is currently responsible for developing and delivering integrated recovery and conformance control technologies that reduce cost and footprint for water flooding and gas injection.

Roelien started her career as a production technologist in the Brent field in the UK, followed by roles in well, facilities and reservoir management and field development planning. She was responsible for multidiscipline integration and held technical leadership roles in a wide range of oil and gas developments, including waterflood assets offshore West-Australia and onshore Oman. In Australia, Malaysia and China Roelien worked on green field gas assets and was responsible for development planning support to Unconventionals. Roelien joined Shell in 1995 and holds an MSc. Degree in Mechanical Engineering (Fluid Dynamics and Heat Transfer), from University of Twente.

Mrs. Broos will give a presentation on:

“Waterflooding: Still challenging after a century of practice”



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