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ASSOCIATION OF  
GEOSCIENTISTS &  
ENGINEERS

**TNO** innovation  
for life



# EAGE/TNO Workshop on OLYMPUS Field Development Optimization

7 SEPTEMBER 2018 • BARCELONA, SPAIN

- **Programme**

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[WWW.EAGE.ORG](http://WWW.EAGE.ORG)

## SCIENTIFIC COMMITTEE

Jan-Dirk Jansen	Delft University of Technology
Ernesto della Rossa	ENI
Remus Hanea	Equinor
Alexandre Emerick	Petrobras
Rahul-Mark Fonseca	TNO

## OVERVIEW

This interactive workshop brings together experts on field development optimization methods to evaluate and demonstrate the potential of state-of-the-art optimization under uncertainty to industry, research organizations and academia. Together with the partners in the ISAPP2 research consortium, TNO has developed and launched the OLYMPUS Field Development Optimization Challenge in early 2017. This challenge consists of 3 exercises on optimization under uncertainty. Many organizations have started working on the dataset and exercises defined. This one-day workshop provides the platform for all participants to present and discuss their results.

## TOPICS

The challenge consists of 3 exercises on optimization under uncertainty:

- Well control optimization
- Well placement optimization
- Joint optimization of well placement and control



## PROGRAMME

### Oral Presentations | Friday 7 September 2018

AGORA 2	
OLYMPUS Field Development Optimization I	
08:30	Registration
08:50	EAGE/TNO Opening & Introduction
09:00	<b>Keynote Speaker - Field Development Optimization: Past, Present and Future Challenges</b> - Prof. Albert Reynolds (University of Tulsa)
09:30	<b>TNO 01 - OLYMPUS Optimization Under Geological Uncertainty</b> - Y. Chang (IRIS), R.J. Lorentzen* (IRIS), G. Naevdal (IRIS), T. Feng (Equinor)
09:55	<b>TNO 02 - Defining 3D Reservoir Well Patterns As Functions Of Geology For Robust Design And Faster Optimization</b> - P. Bergey* (Total S.A.)
10:20	<b>TNO 03 - Well Control Optimization Of The OLYMPUS Case Using MRST And OPM</b> - S. Krogstad* (SINTEF Digital), H.M. Nilsen (SINTEF Digital), O. Møyner (SINTEF Digital), A.F. Rasmussen (SINTEF Digital)
10:45	Coffee Break in Agora 1
11:15	<b>TNO 04 - Application Of A Hierarchical And Partitional Global Optimization Workflow For The OLYMPUS Field Development Optimization</b> - J.E. Onwunlu* (TheDibia Reservoir Solutions)
11:40	<b>TNO 05 - Stochastic Optimization Strategies Applied To OLYMPUS Benchmark</b> - V.L.S. Silva (Petrobras), M.A. Cardoso (Petrobras), D.F.B. Oliveira (Petrobras), R. Moraes* (Petrobras)
12:05	<b>TNO 06 - Standardized Workflow Design For Field Development Plan Optimization Under Uncertainty</b> - R. Schulze-Riegert* (Schlumberger), A. Anton (Schlumberger), J. Baffoe (Schlumberger), D. Geissenhoener (Schlumberger), K. Jin Ng (Schlumberger), M. Nwakile (Schlumberger), S. Skripkin (Schlumberger), C. Meulengracht (Schlumberger), M. Whymark (Schlumberger)
12:30	Lunch & Posters in Agora 1
OLYMPUS Field Development Optimization II	
13:45	<b>TNO 07 - Well Control, Field Development And Joint Optimization Using <math>(\mu+\lambda)</math> Evolutionary Strategy Algorithm And A Stochastic Rank</b> - M. Sayyafzadeh* (The University of Adelaide), Z. Alrashdi (The University of Adelaide)
14:10	<b>TNO 08 - OLYMPUS Field Development Optimization Challenge - American University Of Beirut</b> - A. Harb* (American University of Beirut), H. Kassem (American University of Beirut), K. Ghorayeb (American University of Beirut)
14:35	<b>TNO 09 - Decision Making Under Subsurface Uncertainty via Sequential Uncertainty Refinement Method</b> - S. Tanaka* (Chevron Energy Technology Company), Z. Wang (Chevron Energy Technology Company), J. He (Chevron Energy Technology Company), X.H. Wen (Chevron Energy Technology Company)
15:00	Discussion: Lessons Learned & Way Forward
15:30	Closing & Presentation Ceremony
15:45	Networking Drinks





## Poster Presentations | Friday 7 September 2018

The posters will be presented during lunch and the afternoon coffee break at Agora 1. All attendees are invited to take this opportunity to learn, enjoy the food and interact with the poster presenters.

AGORA 1	
Poster Session	
12:30	<b>TNO P01 - Ensemble-Based Optimization Of Well Trajectory Design In The OLYMPUS Field</b> - E. Barros* (TNO), A. Chitu (TNO), O. Leeuwenburgh (TNO)
	<b>TNO P02 - Methods For Reducing Parameter Solution Space And Accelerated Solution For The OLYMPUS Challenge</b> - P. Gregory (Schlumberger), N. Chugunov (Schlumberger), K. Rashid (Schlumberger), R. Schulze-Riegert* (Schlumberger), M.J. Williams (Schlumberger), W.J. Bailey (Schlumberger), A. Sadowska (Schlumberger), M.A. Giddins (Schlumberger), M. Kristensen (Schlumberger)
	<b>TNO P03 - Drainage Strategy Analytics On The OLYMPUS Field</b> - J. Saetrom* (Resoptima)
	<b>TNO P04 - Optimal Rate Allocation Using Capacitance Resistance Models And Open Source OLYMPUS Tools</b> - D.L. Moreno Bedoya* (Ecopetrol), G.A. Bautista (Ecopetrol), M.A. Gómez (None), F.O. Betancourt (Ecopetrol)
	<b>TNO P05 - Generalized Field Development For The OLYMPUS Reservoir Under Geologic Uncertainty</b> - F. Zou (University of Southern California), A. Jahandideh* (University of Southern California), S. Navabi (University of Southern California), B. Jafarpour (University of Southern California)
	<b>TNO P06 - A Multi-Level Clustering Method For Field Development Optimization Under Uncertainty</b> - A. Awotunde* (King Fahd University of Petroleum & Minerals), N. Sibaweih (King Fahd University of Petroleum & Minerals)
	<b>TNO P07 - Gradient-free Strategies to Robust Well Control Optimization</b> - J.W.O. Pinto* (Federal University of Pernambuco), J.A.R. Tueros (Federal University of Pernambuco), B. Horowitz (Federal University of Pernambuco), S.M.B. Silva (Federal University of Pernambuco), R.B. Willmersdorf (Federal University of Pernambuco)

<b>TNO P08 - Ensemble-Based Optimization With Localized Temporal Contributions To Update Direction</b> - A. Khrulenko* (IRIS), A. Zolotukhin (Gubkin Russian University of Oil and Gas)
<b>TNO P09 - OLYMPUS Challenge - Coventry University</b> - J. Carter* (Coventry University), M. Turner (Zenotech Simulation Ltd), J. Talbot (Heriot-Watt University)
<b>TNO P10 - Efficient Large Scale Optimization Under Uncertainty With Multiple Proxy Models</b> - N.H. Goodwin* (Essence Analytics)
<b>TNO P13 - OLYMPUS Field Development Optimization Study - KFUPM</b> - R.A. Khan* (King Fahd University of Petroleum & Minerals), A. Asad (King Fahd University of Petroleum & Minerals), M.S. Jamal (King Fahd University of Petroleum & Minerals), S.A. Zaidi (King Fahd University of Petroleum & Minerals)
<b>TNO P14 - With Great Power Comes Great Responsibility - OLYMPUS Challenge</b> - A. Kuznetsova* (Rock Flow Dynamics), A. Diaz (Rock Flow Dynamics), A. Volkov (Rock Flow Dynamics), D. Eydinov (Rock Flow Dynamics)

## PROGRAMME CHANGES AND LIABILITY

The technical programme is subject to change, if and when this occurs, EAGE shall not be liable for damages, expenses, personal injury or loss, except when caused by gross fault or negligence on the side of EAGE. EAGE's liability is expressly limited to the amount paid by the participant to EAGE for this event.

## ABSTRACTS AVAILABLE ON EARTHDOC

All papers of the workshop are available on EarthDoc ([www.earthdoc.org](http://www.earthdoc.org)), EAGE's online geoscience database.



## REGISTRATION

REGISTERED AND PAID	16 JUNE – ON-SITE
EAGE Member	€325
EAGE Student Member	€150
Non-Member	€ 375
Student Non-Member	€200

- Members please note: To qualify for the member registration fee, your EAGE membership dues for 2018 must have been paid and confirmed.
- A special registration rate is available for this workshop when attending ECMOR too.
- To qualify for the reduced student registration fee:
- Students must be enrolled in a full time study programme at a recognized university or institute
- The registration must be accompanied by a copy of a student ID card and/or official proof of enrolment.
- Please note: Student non-members cannot be older than 34 years of age (when registering).
- The non-member fee includes EAGE membership for the remainder of 2018.

## WIFI

EAGE offers you complimentary WiFi during the workshop:  
Network: WTCCongresos  
Login: EAGETNOWS  
Password: olympus

## VENUE

The EAGE/TNO Workshop on OLYMPUS Field Development Optimization is held in the World Trade Center of Barcelona, which has a unique location on the Moll de Barcelona, in the old harbour area of Barcelona called Port Vell (meaning old port in Catalan). The venue is only a five minute walk from La Rambla and close to the historic centre.

## WTC

Edif. Este, Moll de Barcelona, s/n, 08039 Barcelona, Spain  
<http://www.wtcbarcelona.com/en/>

## CONTACT

For more information on the background of the challenge and the dataset consisting of reservoir models, please visit: [www.isapp2.com/optimization-challenge.html](http://www.isapp2.com/optimization-challenge.html).

For information on the workshop please contact the EAGE representative at the registration desk in the venue or via e-mail at [eage.events@eage.org](mailto:eage.events@eage.org).



# Enjoy your Workshop!

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