

Poster Exhibition

Topical Area I: Oil and Gas Exploration, and Production

Characterization of the Pore Structure Heterogeneities in Heterogeneous Reservoirs Using CRAI Porosimetry
I. Chatzis^{1,2}, and N. Rezaei²
¹The Petroleum Institute, UAE
²University of Waterloo, Canada

A Study of Permeability and Velocity Anisotropy in Carbonates
M. Saleh¹, M. Prasad², S. Vega¹, and R. Sharma²
¹The Petroleum Institute, UAE
²Colorado School of Mines, USA

Stability of Two-Phase Vertical Flow in EOR Application
A. Riaz, University of Maryland, USA
H. Tchelepi, Stanford University, USA

Investigation of the Mobilization of Residual Oil Using Micromodels
A.S. Ibrahim, N.S. Abdelfattah, and I. Chatzis
The Petroleum Institute, UAE

Hydrodynamic Transition Zone at OWC in Non-Darcy Flow
S. Duan¹, A. K. Wojtanowicz²
¹Louisiana State University, USA
²The Petroleum Institute, UAE

Topical Area II: Natural Gas Processing and Treatment

Fischer Tropsch Synthesis Process (Gas to Liquid Technology, GTL)
A. Nafees, and S. Al Hashimi, The Petroleum Institute, UAE

Acid Gas Composition Effect on Optimum Reactor Temperature in Claus Process
H. Selim¹, A. K. Gupta¹, and M. Sass²
¹University of Maryland, USA
²The Petroleum Institute, UAE

Performance Enhancement of APCI LNG Plant
A. Mortazavi¹, Y. Hwang¹, R. Radermacher¹, S. Al-Hashimi², and P. Rodgers²
¹University of Maryland, USA
²The Petroleum Institute, UAE

Enhancement of LNG Propane Cycle through Waste Heat Powered Absorption Cooling
A. Mortazavi¹, P. Rodgers², S. Al-Hashimi², Y. Hwang¹, and R. Radermacher¹
¹University of Maryland, USA
²The Petroleum Institute, UAE

Topical Area III: Energy Utilization, Efficiency, Sustainability and Recovery

Design Methodology for Ecologically and Economically Optimizing Scheme for Introduction of Co-generation Systems
N. Maruyama¹, S. Nakanishi¹, Y. Sadamichi², and A. K. Gupta³
¹Mie University, Japan, ²Chiang Mai University, Thailand
³University of Maryland, USA

Hydrothermal Treatment of Municipal Solid Waste and Sewage Sludge to Produce Solid Fuel and Liquid Fertilizer
K. Yoshikawa, Tokyo Institute of Technology, Japan

Long-term Operation of a Small-scale Gasification and Power Generation Plant for Chicken Manure
K. Yoshikawa¹ and T. Hara²
¹Tokyo Institute of Technology, Japan
²Shinko Plantech Co., Ltd., Japan

Experimental Investigation to Process High Water Content Waste to Solid Fuel using Superheated Steam
N. Maruyama¹, D. Tanaka¹, M. Tamada¹, T. Shimizu², and A. K. Gupta³
¹Mie University, Japan
²aada Inc., Japan
³University of Maryland, USA

Energy Efficient Polymers for Seawater Heat Exchangers
P. Luckow¹, A. Bar-Cohen², P. Rodgers² and Juan Cevallos¹
¹University of Maryland, USA
²The Petroleum Institute, UAE

Energy Efficient Design & Performance of Commercial Buildings in Developing Countries
E. E. Khalil, Cairo University, Egypt

Advanced Mixing in High-Speed Flows for Efficient Combustion
A. Abdelhafez, and A. K. Gupta, University of Maryland, USA

Active Control for Fuel-Flexible Volumetrically-Efficient Combustion
K.H. Yu, and A.K. Gupta, University of Maryland, USA

Pyrolysis and Steam Gasification of Waste Paper
I. Ahmed and A. K. Gupta, University of Maryland, USA

High Temperature Steam Reforming of Solid and Liquid Wastes Generating from Pyrolysis of Automobile Shredded Residue
P. Donaj, W. Yang, and W. Blasziak
Royal Institute of Technology, Sweden

Advanced Steam Gasification Technology for Plastic Wastes using High Temperature Steam
S. Mochida¹, T. Abe¹ and A.K. Gupta²
¹Nippon Furnace Co. Ltd., JAPAN
²University of Maryland, USA

Intelligent Distributed Autonomous Electric Energy System for UAE
M. G. Balafagh, and M. Poshtan, The Petroleum Institute

Energy-Saving Devices
A. Al-Azizi, A. Al Awadhi, and Y.B. Hammad
The Petroleum Institute, UAE

Topical Area IV: Fuel Cell Technologies

New Developments in Hydrogen Storage
C.J. Peters, The Petroleum Institute, UAE

Solid Oxide Fuel Cells for Energy Recovery from Light Hydrocarbons
G. Jackson, P. Jawlika, S. Patela, S. DeCaluwea, and B. Eichhorn
University of Maryland, USA

Fuel Recycling in Gradual Internal Reforming SOFCs
V. Eveloy, The Petroleum Institute, UAE

Topical Area V: Solar Energy Utilization

Design and Construction of High Performance Fiber Optic Solar Concentrator for Solar Lighting
S. C. Lee^{1,2}, H. Park^{1,2}, J. Woo², K. Choi², and Y. Choi²
¹Kyungnam University, South Korea
²Creative Energy and Technology Inc., South Korea

Modeling of a Solar Powered Absorption Cycle for Abu Dhabi
A. Al-Alili¹, M.D. Islam², I. Kubo², Y. Hwang¹ and R. Radermacher¹
¹University of Maryland, USA
²The Petroleum Institute, UAE

Modeling of dust effect on solar panels in Abu Dhabi
A. Bouchalkha, The Petroleum Institute, UAE

High Efficiency Solar Cooling Technique
A. Al-Alili¹, Y. Hwang¹, R. Radermacher¹, I. Kubo², and P. Rodgers²
¹University of Maryland, USA
²The Petroleum Institute, UAE

Topical Area VI: Biomass Fuel Production

A Global Vision of Ethanol: The Demystification of a Successful Green Brazilian Concept
D. Schmidt, EcoEnergy, Brazil

Production of Methane from Anaerobic Digestion of Jatropha and Pongamia Oil Cakes
V. K. Vijay, R. Chandra, and P. M. V. Subbarao
Indian Institute of Technology Delhi, India

Removal of Fermentation Gases Accelerates Anaerobic Digestion to Methane
R. A. Kohn, University of Maryland, USA

Topical Area VII: Wind Energy

Wind Turbine- An Energy Source for Tomorrow Design of Turbine Mechanism
R. S. Amano, University of Wisconsin, Milwaukee, USA

A Renewable Energy Project for Senior Mechanical Engineering Students: A Wave-Powered Generator
A. Goharzadeh and A. Molki
The Petroleum Institute, UAE

New Method to find Critical Clearing Time for Wind Driven Generators
N. Al-Affif and M. Poshtan, The Petroleum Institute, UAE

Power Swing and Out of Step Protection for Wind Turbine Generators
K. Al-Jaafari and M. Poshtan, The Petroleum Institute, UAE

Topical Area VIII: Monitoring and Industrial Applications

Development of a Probabilistic Model Structure for Reliability Assessment of Pipeline Degradation Due to Corrosion-Fatigue Cracking
M. Chookah¹, M. Nuh¹, M. Modarres¹, A. Seibi²
¹University of Maryland, USA
²The Petroleum Institute, UAE

Design of a Test Rig for Vibration Control of Oil Platforms using Magnetorheological Dampers
L. Lamont, L. Chaar, and M. Karkoub
The Petroleum Institute, UAE.

Multi-Objective Robust Optimization of Energy Systems
W. Hu¹, N. Al-Qasas², M. Li¹, S. Al Hashimi², and S. Azarm¹
¹University of Maryland, USA
²The Petroleum Institute, UAE

Reduced-Order Models for Drill-String Dynamics
C.-M. Liao¹, B. Balachandran¹, M. Karkoub², and Y. L. Abdel-Magid²
¹University of Maryland, USA
²The Petroleum Institute, UAE

Developing Heterogeneous Fiber Optic Sensor Network for Online Monitoring of Combustors and Power Plants
M. Yu and A. Gupta, University of Maryland, USA

Effect of Advanced Injection Timing on the Performance Improving of a Dual-Fuel Diesel Engine with Producer Gas from a Down-Draft Gasifier for Power Generation
S. Kerdsuwan¹, T. Lekpradit², S. Tongorn², and N. Nipattummakul¹
¹King Mongkut's University of Technology North Bangkok, Thailand
²The Sirindhorn International Thai-German Graduate School of Engineering, Thailand

Mold Filling Meta Model for Polymer Composite Heat Exchangers
A. Bar-Cohen¹, S.K. Gupta¹, P. Rodgers², J. Cevallos¹, and M. Adi²
¹University of Maryland, USA
²The Petroleum Institute, UAE

Electric Energy Forecasting by Web-based Method
B. Beig, M. Poshtan, and R. Ramahand
The Petroleum Institute, UAE

Topical Area IX: Heat Transfer and Fluid Flow

Electrohydrodynamics (EHD)-Enhanced Separation of Fine Liquid Droplets from Gas Flows - Application to Refrigeration and Process Industry
M. Alshehri¹, S. Dessiatoun¹, A. Shoostari¹, M. Ohadi² and A. Goharzadeh²
¹University of Maryland, USA
²The Petroleum Institute, UAE

Thermophysical Properties Of Nanostructured Heat Transfer Fluids
B. Yang, Z. Han, F. Cao, J. Xu, and H. Ahuja
University of Maryland, USA

Performance Characterization of Selected Refrigerants in Flat Plate Micro-scale Condenser
E. Al-Hajri¹, S. Dessiatoun¹, A. Shoostari¹, M. Ohadi², and A. Goharzadeh²
¹University of Maryland, USA
²The Petroleum Institute, UAE

Application of Thermally-Enhanced Thermoplastics to Seawater-Cooled Heat Exchangers
A. Bar-Cohen¹, P. Rodgers², J. Cevallos¹ and P. Luckow¹
¹University of Maryland, USA
²The Petroleum Institute, UAE

Turbulent Dynamics of Particle-laden Pipeline Flow
K. Kiger, University of Maryland, USA

Modeling Absorption Chillers in ASPEN
C. Somers¹, A. Mortazavi¹, Y. Hwang¹, R. Radermacher¹, S. Al-Hashimi², and P. Rodgers²
¹University of Maryland, USA
²The Petroleum Institute, UAE

Topical Area X: Environmental Initiatives

The Potential for Carbon Management in Reducing CO₂ Emissions in the Middle East
M. Sengul¹, C. Francis², M. Elkadi², and A. Pillay²
¹Schlumberger Carbon Services, UAE
²The Petroleum Institute, UAE

A Solution to the CO₂ Emission Problem in the Cement Industry
G. Bassioni, The Petroleum Institute, UAE

Influence of Turbulent Mixing on Flameless Combustion and NO_x Formation
M. Hamdi¹, B. Hmaeid¹, and M. Sassi²
¹Ecole Nationale d'Ingénieurs de Monastir, Tunisia
²The petroleum Institute, UAE

Fire Safety of Flame Quenching Limits of Hydrogen Leaks
M.S. Butler¹, C.W. Moran², P.B. Sunderland², R.L. Axelbaum¹
¹Washington University, St. Louis, USA
²University of Maryland, USA

Thermal Field Characteristics with Alternative Fuels in Advanced Power Generation
D. G. Lilley, Lilley & Associates, USA

CFD Modeling of Large-Scale Pool Fires
A. Trouvé, University of Maryland, USA

Fire Dynamics: A Practical Oriented Course for Safety Engineers
D. G. Lilley, Lilley & Associates, USA

Energy Saving Light Bulbs
A. Al Naqbi, S. Al Dhaheri, and A. Rashid
The Petroleum Institute, UAE

Topical Area XI: Undergraduate Student Submissions



ENERGY 2030

An International Conference on Energy Resources and Technologies

Second International Energy 2030 Conference

The Petroleum Institute will host the Second International Energy 2030 Conference, a forum dedicated to addressing Energy Resources and Technologies in 2030, on 4-5 November, 2008. The conference is sponsored by Abu Dhabi National Oil Company (ADNOC) Group of Companies, and will be held in conjunction with the Abu Dhabi International Petroleum Exhibition & Conference 2008 (ADIPEC), 3-6 November, 2008, at the brand new Abu Dhabi National Exhibition Centre (ADNEC).

The primary objective of the Energy 2030 Conference is to share views and information that can serve critically useful to the strategic planning of Research and Development in the Oil and Gas and broader Energy areas, including energy availability and usage, transport, and environmental issues.

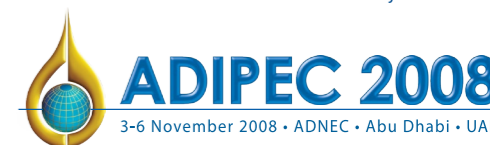
The Technical Program comprises of high Invited Key Note Talks by top experts and scholars from around the world. These experts will express their views on current and emerging Energy Resources and Technologies that are likely to serve as critically important contributors to the Energy supply in various sectors twenty years from now. The Conference will also host a Poster Exhibition and series of Technical Tutorials on energy resources and technologies within the theme of the conference. In addition, an energy technology arena will showcase the latest developments in a variety of energy technologies.

The Program Topical Areas include:

- Oil scenarios: from peak oil to plenty of oil
- Future of natural gas as a bridge and beyond
- Nuclear energy as an alternative
- Solar energy now and in the future
- Wind energy
- Hydrogen, methanol and ethanol as fuels for the future
- Energy from biomass and wastes
- Carbon management
- Impact of energy consumption on the environment
- Energy efficiency
- Transport energy
- Research and development needs in the oil and gas industries

The oil and gas industry is in the midst of a historic shift. Stranded resources are now on the verge of profitable realization. Feedstocks that have been marginally utilized to date as a result of high upgrading costs are becoming attractive ventures in the context of current energy price levels, the growing worldwide energy demand, and pressure for environmentally responsible methods. More than ever, technology will be the driver to meet these challenges. It is hoped that Energy 2030 will forge a solid foundation in meeting these objectives.

In conjunction with:



Event venue:



Associate Conference Organiser:



Official Media Partner:



The Petroleum Institute:



www.energy-2030.com





Honorary Chair
HE Yousef Omair bin Yousef, CEO, ADNOC, UAE

Conference Chair
Prof. Michael Ohadi, The Petroleum Institute, UAE

Conference Co-Chairs
Prof. Ashwani Gupta, University of Maryland, USA
Prof. Peter Rodgers, The Petroleum Institute, UAE

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Mr. Jamie Newbery, dmg world media, UAE
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Mr. NK Mitra ONGC, UAE
Mr. Rolf Monjo Occidental Development Company, UAE
Mr. Salem Al Matroushi ADNOC, UAE

Program

3 November 2008

20.00 Dinner for Invited Speakers

Day One - Tuesday 4 November 2008

07.00 Attendee Registration and Coffee

OPENING ADDRESS

08.30 **Welcoming Remarks**
Prof. Michael Ohadi, Provost and Acting President, The Petroleum Institute, UAE

08.45 **Opening Address**
H.E. Abdulla Nasser Al Suweidi, Deputy CEO and E & P Director, Abu Dhabi National Oil Company (ADNOC), UAE

Session I: Oil and Gas Supplies: Status and Future Directions

Chair: Prof. Michael Ohadi, The Petroleum Institute, UAE

09.00  **Energy Outlook: Challenges and Opportunities**
Dr. Marianne Kah, Chief Economist, ConocoPhillips, USA

09.45  **Technological Innovation and the Future of the Oil and Gas Industry**
Prof. David G. Victor, Director, Program on Energy and Sustainable Development, Stanford University, USA

10.30 Summary Questions and Answers

10.50 Coffee Break

Session II: Energy Efficiency and Sustainability

Chair: Prof. Ashwani Gupta, University of Maryland, USA

11.05  **Energy and Reason: Securing and Sustaining Global Reach for the US Air Force**
Dr. Donald R. Erbschloe, Chief Scientist, US Air Mobility Command, USA

11.50  **From Cans to Cars - Saving Energy and Resources with Polymers**
Dr. Kent Abbas, Senior Advisor Innovation and Technology, Borealis, Belgium

12.35 Summary Questions and Answers

12.55 Lunch

14.00  **Can Separation Processes Be more Energy-Efficient?**
Prof. Edward L. Cussler, Distinguished Institute Professor, University of Minnesota, USA

14.45  **Biomass as Renewable Energy Source for Sustainability**
Prof. Ramesh K. Agarwal, William Palm Professor of Engineering, Washington University in St. Louis, USA

15.30 Coffee Break

Technical Tutorial Program

A series of Technical Tutorials will be presented on **Day Two (November 5)** of the Conference. The objective of these tutorials is to offer an educational overview on alternative energy topics and environmental issues. The tutorials will be given by eminent experts in their fields, and will offer opportunities for interaction between the audience and the Speaker.

8.30 to 9.15 **Carbon Capture and Storage: Technologies, Opportunities, and Risks**
Dr. Varun Rai, Research Fellow, Program on Energy and Sustainable Development (PESD), Stanford University, USA

9.15 to 10.00 **An Overview of Nuclear Power Plant Design and Accident Assessment**
Dr. Farouk Eltawila, Former Director at the US Nuclear Regulatory Commission, USA

10.30 to 11.15 **Bioenergy**
Prof. Ramesh K. Agarwal, William Palm Professor of Engineering, Washington University in St. Louis, USA

11.15 to 12.00 **The Potential of Solar Energy in Abu Dhabi and how MASDAR will utilize it**
Dr. Olaf Goebel, Senior Project Manager, Engineering, Abu Dhabi Future Energy Company (ADFEC), UAE

13.30 to 14.15 **Combustion: Fundamentals, Energy and Pollution**
Prof. Ashwani K. Gupta, Distinguished University Professor, University of Maryland, USA

14.15 to 15.00 **Introduction to Fuel Cells**
Prof. Nandakumar Krishnaswamy, GASCO Chair Professor, The Petroleum Institute, UAE

Poster Exhibition

The Poster Exhibition is contributed by renowned organizations from North America, Europe, Asia and the Middle East. The posters are organized under eleven topical areas:

- Oil and Gas Exploration, and Production
- Natural Gas Processing and Treatment
- Energy Utilization, Efficiency, Sustainability and Recovery
- Fuel Cell Technologies
- Solar Energy Utilization
- Biomass Fuel Production
- Wind Energy
- Monitoring and Industrial Applications
- Heat Transfer and Fluid Flow
- Environmental Initiatives
- Undergraduate Student Submissions

The Energy 2030 conference will be held at the new Abu Dhabi National Exhibition Centre.

Session II: Energy Efficiency and Sustainability (Continued)

15.45  **Educating the 2030 Global Energy Engineer**
Prof. Avram Bar-Cohen, Distinguished University Professor and Chair, University of Maryland, USA

16.30 Summary Questions and Answers

19.00 Alternative Energy Awards

Day Two - Wednesday 5 November 2008

07.30 Attendee Registration and Coffee

Session III: Environmental Strategy

Chair: Prof. Peter Rodgers, The Petroleum Institute, UAE

08.30  **A Systems Approach to Energy and the Environment**
Prof. Ronald M. Sega, Woodward Professor of Systems Engineering, Colorado State University, USA

09.15  **Carbon Sequestration and Chemical Synthesis**
Prof. Adel Sarofim, Presidential Professor at the University of Utah, and Professor Emeritus, Massachusetts Institute of Technology, USA

10.00  **Clean and Sustainable Energy Supply: The European Approach**
Prof. Klaus Hein, University of Stuttgart, Germany

10.45 Summary Questions and Answers

11.10 Coffee Break

Session IV: Research and Development Challenges in the Oil and Gas Industries for Energy 2030

Chair: Prof. Saleh Al Hashimi, The Petroleum Institute, UAE

11.25 **Mr. Mohamed Butti Al Qubaisi**, Deputy Director E & P, Abu Dhabi National Oil Company (ADNOC), UAE

Mr. Abdul Munim Saif Al Kindy, General Manager, Abu Dhabi Company for Onshore Oil Operations (ADCO), UAE or designate.

Prof. Michael Ohadi, Provost and Acting President, The Petroleum Institute, UAE

Dr. Zara Khatib, Manager of Technology Marketing and Deployment for Middle East and South Asia, Shell E&P International, UAE

Prof. Karl Berteussen, Director of Research (Acting), The Petroleum Institute, UAE

Dr. Kent Abbas, Senior Advisor Innovation and Technology, Borealis, Belgium

12.35 Lunch

Session V: Alternative Fuels

Chair: Prof. Ronald M. Sega, Colorado State University, USA

13.35  **Overview of MASDAR Solar Strategy**
Prof. Marwan Khraisheh, Acting Provost, Masdar Institute of Science and Technology, UAE

14.20  **Development of Nuclear Energy for a Sustainable World**
Prof. Mujid Kazimi, Massachusetts Institute of Technology, USA

15.05  **The Grand Challenge of the Hydrogen Economy: A Challenge too far?**
Prof. Peter Edwards, University of Oxford, UK

15.50 Summary Questions and Answers

16.10 Closing Address