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June 19–24, Maui, Hawaii, USA

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ISOPE-2011

Hyatt Regency Maui Hotel, Hawaii, USA, June 19–24

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Refereed papers from **51** countries in **149** technical general
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ISOPE, P.O. Box 189
Cupertino, CA 95015-0189, USA
Fax: +1-650-254-2038 : meetings@isopec.org; www.isopec.org

ISOPE-2011 Maui Conference

This 21st annual conference features **149 technical and opening general sessions**, and **6 keynote presentations** with top experts from industry, academia and government. After **peer review of the manuscripts** selected from **1,350 abstracts**, some **750** papers will be presented and discussed by researchers, engineers and managers from more than **51** countries.

The conference proceedings of peer-reviewed papers in PDF files will be available in a set of 4 volumes on CD-ROM (**4,200** pp. est.) — paginated within each volume — during the conference and later for worldwide post-conference mail order from ISOPE: **ISBN 978-1-880653-96-8; ISSN 1098-6189** and separately (deep) ocean mining symposium proceedings **ISBN 978-1-880653-95-1; ISSN 1946-0066**.

All indexed by Engineering Index (EI).

Long sessions* continue to next session.

To view the **full ISOPE-2011 Maui conference and symposia program**, click on www.isopec.org >meetings or www.isopec2011.org

ISOPE FRONTIER AND CLEAN ENERGY SYMPOSIUM

10. FRONTIER ENERGY I: Clean Energy (V. 1)

Monday **June 20** **10:30** Room 9

Chair R Ayer, ExxonMobil Research & Engineering Co., USA

CNG - Technologies: A Comparison Study

P Kaeding, U Ruppin, N Noetzold, P Pentschew, Univ of Rostock, Germany

Conveying Oil and Gas with Twin-Screw Multiphase Pumps Taking in Account Sorption Phenomena

F Hatesuer, T Groth, Leibniz Univ of Hanover; M Reichwage, J Lewerenz, Bornemann GmbH; A Luke, Univ of Kassel, Germany

Effects of Swirls on Natural Gas Flow in Supersonic Separators

C Wen, XW Cao, Y Yang, J Zhang, GD Wang, China Univ of Petroleum, China

Development of a Design Tool for Modeling Hydrogen Distribution Systems

S Riedl, RH Knapp, Univ of Hawaii at Manoa, USA

Experimental Investigation into Replacement of CH₄ in Hydrate in Porous Sediment with Liquid CO₂ Injection

XS Li, LJ Xiong, G Li, ZY Chen, ZY Zeng, Guangzhou Inst of Energy Conversion, CAS, China

Geochemistry of Methane in Gas Hydrate from ShenHu of the Northern South China Sea

X Huang, YH Zhu, PK Wang, XW Guo, Chinese Academy of Geological Sciences, China

Simulation of Standing Column Well Geothermal Heat Pump System for Design

DH Park, JS Park, Hanyang Univ; SS Park, SM Na, GS E&C Research Inst, Korea

Investigation of Asphaltene Precipitation Problems During CO₂/Hydrocarbon Injection Project for EOR Application

G Oskui, Kuwait Inst for Scientific Research, Kuwait

19. FRONTIER ENERGY II: Clean Coal (V. 1)

Monday June 20 14:00 Room 9

Chair: DS Kim, SK Energy, Korea

Co-Chair: S Patil, Univ of Alaska, USA

Methanation Reaction for the Production of Synthetic Natural Gas from Synthesis Gas Produced by Coal Gasification

KB Lee, WR Kang, SI Im, Korea Univ, Korea

Fundamental Study on the Hybrid Fluidized Bed Combustion under Combination of Petroleum Cokes and Biomass Fuel for a Small and Mid-sized Industrial Boiler

DH Lee, SK Lim, YJ Kim, GT Kim, SR Park, SK Energy, Korea

The Coal Gasification Study of K₂CO₃ Impregnated Lignite

SR Park, GT Kim, JH Kim, HM Shim, JW Park, NH Ko, SK Energy Inst of Tech, Korea

The Effect of Pressure on Coal Gasification Behaviors in a 1 Ton/Day Scale Partitioned Fluidized Bed Gasifier

GT Jin, JH Moon, SY Lee, YC Park, HJ Ryu, Korea Inst of Energy Research, Korea

Modeling of Coal/Biomass Gasification in a Dual Circulating Fluidized Bed Reactor

MW Seo, SD Kim, KAIST; TDB Nguyen, YI Lim, Hankyong National Univ; SW Park, KAIST, Korea

Process Development in the Coal Drying System

K Oh, MK Kim, MH Yi, JH Bahng, GT Kim, SY Park, SK Energy, Korea

47. FRONTIER ENERGY III: Materials for Clean Energy 1

(V. 1)

Tuesday June 21 10:30 Room 9

Chair: L Zheng, Tsinghua Univ., China

Co-Chair: R Palmer, Univ of Birmingham, UK

Introductory Remarks: Nanomaterials and Nanotechnology

Tsakalagos & Kabacoff

Heterogeneous Catalysis for Clean Energy with Novel Size-Selected Nanocluster Powders

V Habibpour, MY Song, ZW Wang, Univ of Birmingham; J Cookson, C Brown, PT Bishop, Johnson Matthey Tech Centre; RE Palmer, Univ of Birmingham, UK

High-Resolution Structural and Chemical Analysis of Nanostructured Materials for Li-Ions Batteries

ML Trudeau, R Veillette, K Zaghbi, Hydro-Quebec Research Inst, Canada

Modern Catalytic Nanotechnologies for Sustainable Chemistry and Environmental Protection

EM Sulman, Tver Tech Univ, Russia

New Solid Inorganic Photovoltaics and Thermoelectrics with Nanolayered Structures

K Xhaxhiu, A Korpa, Univ of Tirana, Albania

57. FRONTIER ENERGY IV: Materials for Clean Energy 2

(V. 1)

Tuesday June 21 14:00 Room 9

Chair: J Ying, National Singapore Univ, Singapore

Co-Chair: A Mukherje, Univ of California Davis, USA

Nanostructured Metal Hydrides for Hydrogen Storage

T Klassen, U Bösenberg, C Pistidda, C Bonatto-Minella, R Gosalawit, G Lozano, K Suarez, J Bellosta von Colbe, G Barkhordarian, K Pranzas, M Dornheim, Helmholtz-Zentrum Geesthacht, Germany

Energy Harvesting Using Piezoelectric & Electromechanical Transducers

EK Akdoğan, I Savkilyildiz, B Berke, T Tsakalagos, Rutgers Univ, USA

Molecular Simulation Studies of Adsorption and Diffusion Separation of CH₄/H₂ Mixture in Metal-organic Frameworks with Interpenetration and Mixed-Ligand

B Liu, GJ Chen, China Univ of Petroleum, China

Nanomaterials for Clean Energy Applications

T Tsakalagos, EK Akdoğan, Rutgers Univ, USA

Efficient Solid-State Dye-sensitized Solar Cells Elaborated From Laser Synthesized TiO₂ Nanocrystals

H Melhem, Univ of Limoges; P Simon, CEA; C Di Bin, Univ of Limoges; Y Lecomte, CEA; B Ratier, J Bouclé, Univ of Limoges; N Herlin-Boime, CEA, France

