

2012 SPE Symposium on Improved Oil Recovery

Changes/additions after 6 April 2012 may not be reflected

Monday, 16 April 10:30 a.m. to 12:00 p.m.

Madrid 1

CARBON CAPTURE

Session Chairpersons: Mark Holtz, Praxair
Dane Cantwell, Legado Resources

- 10:30 154122 **Mobility and Conformance Control for CO₂ EOR via Thickeners, Foams, and Gels: A Literature Review of 40 Years of Research and Pilot Tests**
• R.M. Enick, University of Pittsburgh; D. Olsen, IBM Global Business Services; J. Ammer, US DOE; W. Schuller, URS Corporation
- 11:00 153336 **Foam Mobility Control for Nanoparticle-Stabilized Supercritical CO₂ Foam** • Jianjia Yu, Cheng An, Di Mo, Ning Liu, Robert Lee, Petroleum Recovery and Research Center, New Mexico Institute of Mining and Technology
- 11:30 154248 **Effect of Spontaneous Formation of Nanoparticle Stabilized Emulsion on the Stability of a Displacement** • B. Aminzadeh, D.A. DiCarlo, M. Roberts, D.H. Chung, S.L. Bryant, C. Huh, University of Texas at Austin

Monday, 16 April 10:30 a.m. to 12:00 p.m.

Madrid 3

ALKALINE SURFACTANT

Session Chairpersons: Betty Felber, Consultant
Paul Bondor, Bontech

- 10:30 154318 **The Design and Execution of an Alkaline-Surfactant-Polymer Pilot Test**
• A. Sharma, A. Azizi-Yarand, B. Clayton, G. Baker, P. McKinney, University of Texas at Austin; C. Britton, M. Delshad, Rex Energy; G.A. Pope, University of Texas at Austin
- 11:00 151285 **Recent Progress and Effects Analysis of ASP Flooding Field Tests** • Youyi Zhu, Qingfeng Hou, Weidong Liu, Desheng Ma, Guangzhi Liao, State Key Laboratory of Enhanced Oil Recovery, Research Institute of Petroleum Exploration and Development
- 11:30 154274 **Alkaline Surfactant Polymer Flooding Using a Novel Class of Hydrophobe Surfactants** • P.J. Liyanage, S. Solairaj, G. Pinnawala Arachchilage, H.C. Linnemeyer, Do Hoon Kim, U. Weerasooriya, G.A. Pope, University of Texas at Austin

Alternate

- 154034 **A Successful Pilot of Dilute Surfactant-Polymer Flooding in Shengli Oilfield** • Zhenquan Li, Aimei Zhang, Xiaohong Cui, Li Zhang, Lanlei Guo, Liantao Shan, Geological Science Research Institute of Shengli Oil Field Company,

Monday, 16 April 10:30 a.m. to 12:00 p.m.

Seville 2 & 3

RESERVOIR MANAGEMENT

Session Chairpersons: Felix Ascanio, Shell International E&P
Robert Withers, Chevron Corporation

- 10:30 154336 **Effect of Neutral Salts and Temperature on the Partitioning Coefficient of Ethyl Formate Used for Enhanced Oil Recovery Assessment** • N.

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Chavez Majluf, B.J. Shiau, J.H. Harwell, B.L. Roberts, Zhixun Lin, S. Yuill,
University of Oklahoma

- 11:00 154009 **An Integrated Solution To Effective Waterflood Surveillance and Pressure Maintenance: Pilot Project of Greater Burgan Field, Kuwait** • B.A. Rahman, M. Al-Naqi, S. Rajan, A.A. Ameen, Kuwait Oil Company; S. Oyemakinde, M.A. Al-zadjali, J. Ofrabor, Z. Ali, Schlumberger
- 11:30 153802 **A New Method for Dynamic Calculation of Pattern Allocation Factors in Waterflood Monitoring** • E. Saadatpoor, University of Texas at Austin; H. Karami, Schlumberger; M.F. Al-ajmi, Kuwait Oil Company

Monday, 16 April 10:30 a.m. to 12:00 p.m.

Madrid 2

UNCONVENTIONAL OIL

Session Chairpersons: Robert Barba, Integrated Energy Services
Gaoming Li, University of Tulsa

- 10:30 153853 **Wettability Survey in Bakken Shale Using Surfactant Formulation Imbibition** • D. Wang, R. Butler, J. Zhang, University of North Dakota; R.S. Seright, PRRC/New Mexico Tech
- 11:00 154329 **Comparison of Various Gases for Enhanced Recovery From Shale Oil Reservoirs** • B.T. Hoffman, Colorado School of Mines
- 11:30 154341 **Improved Reservoir Characterization Using Petrophysical Classifiers Within Electrofacies** • Woan Jing Teh, G.P. Willhite, University of Kansas; J.H. Doveton, Kansas Geological Survey

Monday, 16 April 1:30 to 5:00 p.m.

Madrid 1

POLYMER FLOODING

Session Chairpersons: Steve Nash, Anadarko Petroleum Corporation
Todd Buikema, BP America

- 1:30 154567 **Polymer Flooding a ~500-cp Oil** • K.P. Moe Soe Let, R.N. Manichand, Staatsolie Suriname; R.S. Seright, New Mexico Institute of Mining and Technology
- 2:00 153878 **Development of a Tool To Predict Technical Success of Polymer Flooding Applications** • K. Rai, T. Mccomb, E. Rodriguez, R.J. Withers, Chevron Energy Technology Company
- 2:30 154045 **Improving Heavy Oil Recovery Using an Enhanced Polymer System** • P. Fletcher, S. Cobos, C. Jaska, J. Forsyth, M. Crabtree, Oilflow Solutions; N. Gaillard, C. Favero, SNF

BREAK: Networking, Exhibits | 3:00 - 3:30

- 3:30 154294 **Rheology and Transport of Improved EOR Polymers Under Harsh Reservoir Conditions** • E.U. Kulawardana, Heesong Koh, Do Hoon Kim, PIJ. Liyange, K.A.N. Upamali, Chun Huh, U. Weerasooriya, G.A. Pope, University of Texas at Austin
- 4:00 153070 **New Insights on the Mechanism of Displacement Efficiency of Natural Cores by Chemical Flooding and Its Influence on the Development and Selection of Chemicals for EOR** • Wang Demin, Wang Gang, Daqing Oilfield Company
- 4:30 154292 **2D Visualization of Unstable Waterflood and Polymer Flood for Displacement of Heavy Oil** • A. Skauge, P.A. Ormehaug, T. Gurholt, B. Vik, CIPR; I. Bondino, G. Hamon, Total

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Monday, 16 April 1:30 to 3:00 p.m.

Madrid 2

HEAVY OIL THERMAL

Session Chairpersons: Felix Ascanio, Shell International E&P
Reza Fassihi, BHP Billiton

- 1:30 154088 **Field Scale Application of the Steam-Over-Solvent Injection in Fractured Reservoirs Method: Optimal Operating Conditions** • T. Babadagli, K. Naderi, University of Alberta
- 2:00 154010 **Research and Application on Nitrogen and Dissolver Assisted Horizontal Well Steam-Injection To Develop Shallow-Thin Super Heavy Oil Reservoirs** • Jianfang Sun, Yong Yang, Guanghuan Wu, long Jiang, Qiuying Cao, Yanbin Zhao, Geological Science Research Institute of Shengli Oil Field Company
- 2:30 154333 **Self-Sustained CAGD Combustion Front Development: Experimental and Numerical Observations** • H. Rahnema, M.A. Barrufet, Texas A&M University; D. Mamora, Mamora & Associates

BREAK: Networking, Exhibits | 3:00 - 3:30

Monday, 16 April 3:30 to 5:00 p.m.

Madrid 2

CO₂ I

Session Chairpersons: Felix Ascanio, Shell International E&P
Reza Fassihi, BHP Billiton

- 3:30 154165 **CO₂ Injection in Porous Media: Observations in Glass Micromodels Under Reservoir Conditions** • M. Robin, J. Behot, V. Sygouni, IFP Energies nouvelles
- 4:00 154307 **Experimental and Modeling Study of Multicontact Miscible Displacements** • H. Shojaei, University of Southern California; R. Rastegar, Chevron; K.Jessen, University of Southern California
- 4:30 154518 **Design and Development of Aqueous Colloidal Gas Aphrons for Enhanced Oil Recovery Applications and Potential Use in Carbon Sequestration** • S.R. Samuel, E. Kuru, J.J. Trivedi, University of Alberta

Monday, 16 April 1:30 to 5:00 p.m.

Seville 2 & 3

LOW SALINITY I

Session Chairpersons: Birol Dindoruk, Shell International E&P
Roy Knapp, University of Oklahoma

- 1:30 154037 **Observation of the Low-Salinity Effect by Atomic Force Adhesion Mapping on Reservoir Sandstones** • T. Hassenkam, J. Mathiesen, C. Pedersen, K.N. Dalby, S.L.S. Stipp, University of Copenhagen; I.R. Collins, BP Exploration Operating company
- 2:00 153161 **Mechanistic Modeling of the Benefit of Combining Polymer With Low Salinity Water for Enhanced Oil Recovery** • H. Mohammadi, G. Jerauld, BP
- 2:30 154076 **Improved/Enhanced Oil Recovery From Carbonate Reservoirs by**

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Tuning Injection Water Salinity and Ionic Content • A.A. Yousef, S. Al-Saleh, M.S. Al-Jawfi, Saudi Aramco

BREAK: Networking, Exhibits | 3:00 - 3:30

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|------|--------|---|
| 3:30 | 153744 | Surface Complexation Modeling for Improved Oil Recovery • P.V. Brady, J.L. Krumhansi, P.E. Mariner, Sandia National Laboratories |
| 4:00 | 154334 | IDouble-Layer Expansion: Is It a Primary Mechanism of Improved Oil Recovery by Low-Salinity Waterflooding? • R.A. Nasralla, H.A. Nasr-El-Din, Texas A&M University |
| 4:30 | 154281 | The Science of Membrane Technology to Further Enhance Oil Recovery • L. Henthorne, J. Wodehouse, Water Standard |

Monday, 16 April 1:30 to 5:00 p.m.

Madrid 3

CASE STUDIES I

Session Chairpersons: Sunil Kokal, Saudi Aramco
James Smith, Devon Energy Corporation

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|------|--------|---|
| 1:30 | 152862 | Beaver Creek Madison CO₂ Enhanced Recovery Project: Case History, Riverton, Wyoming • C.A. Peterson, E.J. Pearson, V.T. Chodur, Devon Energy; C. Periera, M3 Petroleum Engineering |
| 2:00 | 154023 | Katz (Strawn) Unit Miscible CO₂ Project: Design, Implementation, and Early Performance • D.J. Smith, T.R. Kelly, D.L. Schmidt, C.E. Bowden, Kinder Morgan Production Company |
| 2:30 | 153906 | A Pilot Carbon Dioxide Test, Hall Gurney Field, Kansas • G. Willhite, University of Kansas; A.P. Brynes, Chesapeake Energy Corporation; M.K. Dubois, Improved Hydrocarbon Recovery; R.E. Pancake, Murfin Drilling Company; J. Tsau, University of Kansas; J.R. Daniels, Murfin Drilling Company; W.A. Flanders, Transpetco |

BREAK: Networking, Exhibits | 3:00 - 3:30

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|------|--------|--|
| 3:30 | 154159 | Chemical EOR Pilot in Mangala Field: Results of Initial Polymer Flood Phase • A. Pandey, M. Suresh Kumar, M.K. Jha, R. Tandon, B. Punnappully, M.A. Kalugin, A. Khare, D. Beliveau, Cairn Energy India |
| 4:00 | 154128 | Evaluation of a Vietnam Offshore CO₂ Huff 'n' Puff Test • T. Uchiyama, Y. Fujita, Y. Ueda, JX-NOEX; A. Nishizaki, H. Okabe, S. Takagi, H. Mitsuishi, JOGMEC; Y. Kawahara, L. Huy, JVPC; Phan Ngoc Trung, Nguyen Huu Trung, VPI; Nguyen Van Toan, Nguyen Ngoc Hoan, PVN |
| 4:30 | 154050 | Case Study of Polymer Flood Pilot in a Low Permeability Mannville Sand of the Western Canadian Sedimentary Basin Using Produced Water for Blending • R. Irvine, J. Davidson, S. Edwards, J. Kingsbury, Hui-June. Park, C. Tardiff, Harvest Operations Corporation |

Tuesday, 17 April 8:30 a.m. to 12:00 p.m.

Madrid 2

SURFACTANT I

Session Chairpersons: Ben Shiau, University of Oklahoma
Paul Bondor, Bontech

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|------|--------|--|
| 8:30 | 154247 | Measurement and Analysis of Surfactant Retention • S. Solairaj, C. Britton, Do Hoon Kim, U. Weersoorija, G.A. Pope, University of Texas at Austin |
| 9:00 | 153988 | Adsorption of an Amphoteric Surfactant Onto Permeable Carbonate Rocks • X. Zhou, M. Han, A.B. Fuseni, A.A. Yousef, Saudi Aramco |
| 9:30 | 154260 | Improved Oil Recovery by Chemical Flood From a High Salinity |

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Reservoir • B. Shiau, Tzu-Ping Hsu, P. Lohateeraparp, Wei Wan, Zhixun Lin, B.L. Roberts, J.H. Harwell, University of Oklahoma

BREAK: Networking, Exhibits | 10:00 - 10:30

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| 10:30 | 154053 | Optimization of Viscosifying Surfactant Technology for Chemical EOR • M. Morvan, G. Degre, Rhodia; D. Dupuis, A. Zaitoun, Poweltec; R.S. Al-Maamari, A.R. Al-Hashmi, SQU; H.H. Al-Sharji, PDO |
| 11:00 | 154256 | Development of Thermally and Chemically Stable Large-Hydrophobe Alkoxy Carboxylate Surfactants • S. Adkins, G. Pinnawala Arachchilage, S. Solairaj, Jun Lu, U. Weerasooriya, G.A. Pope, University of Texas at Austin |
| 11:30 | 153902 | Experimental and Numerical Simulation of Surfactant-Assisted Oil Recovery in Tight Fractured Carbonate Reservoir Cores • B. B. Alamdari, M. Kiani, H. Kazemi, Colorado School of Mines |

Tuesday, 17 April 8:30 a.m. to 12:00 p.m.

Madrid 1

HEAVY OIL NONTHERMAL

Session Chairpersons: Reza Fassihi, BHP Billiton
Robert Barba, Integrated Energy Services

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| 8:30 | 154171 | Gravity-Enhanced Transfer Between Fracture and Matrix in Solvent-Based Enhanced Oil Recovery • S. Kahrobaei, R. Farajzadeh, Delft University of Technology; V.S. Suicmez, Shell Global Solutions International; H. Bruining, Delft University of Technology |
| 9:00 | 152996 | Visualization of Oil Recovery by CO₂ Foam Injection: Effect of Oil Viscosity and Gas Type • A. Emadi, M. Sohrabi, M. Jamiolahmady, S. Ireland, Heriot-Watt University |
| 9:30 | 154140 | Numerical Simulation of Electromagnetic Driven Heavy Oil Recovery • I. Bogdanov, J.A. Torres, CHLOE; B. Corre, Total |

BREAK: Networking, Exhibits | 10:00 - 10:30

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| 10:30 | 153862 | Scaleup of Effective Mass Transfer in Vapor Extraction Process for Heterogeneous Reservoirs • J.Y. Leung, University of Alberta |
| 11:00 | 153570 | ASP Formulation Design for Heavy Oil • J. Zhang, R. Ravikiran, D. Freiberg, C. Thomas, Tiorco |
| 11:30 | 154299 | Potential for In-Situ Combustion in Depleted Conventional Oil Reservoirs • R.G. Moore, S.A. Mehta, M.G. Ursenbach, University of Calgary; D. Gutierrez, Computer Modeling Group |

Tuesday, 17 April 8:30 a.m. to 12:00 p.m.

Seville 2 & 3

LOW SALINITY II

Session Chairpersons: Todd Buikema, BP America
Gerard Renard, IFP Energies Nouvelles

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| 8:30 | 154236 | Low Salinity Waterflood at Reduced Capillarity • K. Spildo, A. Skauge, A.M. Johannessen, University of Bergen |
| 9:00 | 153869 | Low Salinity EOR in Carbonates • J. Romanuka, J.P. Hofman, D.J. Ligthelm, B.M.J.M. Suijkerbuijk, A.H.M. Marcelis, S. Oedai, N.J. Brussee, H.A. van Shell; H. Aksulu, T. Austad, University of Stavanger; D.J. Ligthelm, F. Marcelis, S. Oedai, N. Brussee, H. Van der Linde, B. Suijkerbuijk, Shell; H. Aksulu, T. Austad, University of Stavanger |
| 9:30 | 154204 | Fundamental Investigations Into Wettability and Low Salinity Flooding by Parameter Isolation • B.M.J.M. Suijkerbuijk, J.P. Hofman, D.J. |

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Ligthelm, J. Romanuka, N. Brussee, H. Van der Linde, A.H.M. Marcelis, Shell
Global Solutions International

BREAK: Networking, Exhibits | 10:00 - 10:30

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| 10:30 | 154209 | Secondary and Tertiary Recovery of Crude Oil From Outcrop and Reservoir Rocks by Low Salinity Waterflooding • W. Winto, N. Loahardjo, Xina, Xie, Peigui Yin, N.R. Morrow, University of Wyoming |
| 11:00 | 154142 | Low Salinity Water Flooding Experiments and Interpretation by Simulations • I. Fjelde, S.M. Asen, A. Omekeh, IRIS |
| 11:30 | 154144 | Modeling of Ion-Exchange and Solubility in Low Salinity Water Flooding • A. Omekeh, H.A. Friis, I. Fjelde, IRIS; S. Evje, University of Stavanger |

Alternate

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| 152997 | Investigating Low Salinity Waterflooding Recovery Mechanisms in Sandstone Reservoirs • A. Al-Adasani, Kuwait Oil Company, Missouri University of Science and Technology; B. Bai, Missouri University of Science and Technology; Y. Wu, Colorado School of Mines |
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Tuesday, 17 April 8:30 a.m. to 12:00 p.m.

Madrid 3

CASE STUDIES II

Session Chairpersons: Varadarajan Dwarakanath, Chevron Corporation
Steve Nash, Anadarko Petroleum Corporation

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|------|--------|---|
| 8:30 | 154042 | Thermally Activated Particle Treatment To Improve Sweep Efficiency: Pilot Test Results and Field Scale Application Design in El Borma Field, Tunisia • G. Galli, D. Morra, Eni E&P; F. Ghaddab, M. Tesconi, Sitep; E. Manrique, G. Freeman, Tiorco |
| 9:00 | 154181 | Optimization of a Mature CO₂ Flood: From Continuous Injection to WAG • Dengen Zhou, Meisong Yan, W.M. Calvin, Chevron |
| 9:30 | 154216 | A Texas MEOR Application Shows Outstanding Production Improvement Due to Oil Release Effects on Relative Permeability • F. Akintunji, Atinum E&P; B. Marcotte, A. Sheehy, B.R. Govreau, Titan Oil Recovery |

BREAK: Networking, Exhibits | 10:00 - 10:30

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| 10:30 | 154255 | Eco-GSAI, Gravity Stable Air Injection Pilot Test: An Enhanced Oil Recovery Opportunity for Implementation in Chichimene Field, Columbia • A. Ordonez, M. Trujillo, E. Rodriguez, Ecopetrol; J.D. Belgrave, Belgrave Oil & Gas; A. Lobo, F. Fernandez, J.C. Comas, H. Bottia, Ecopetrol |
| 11:00 | 154270 | Optimal Injection Design Utilizing Tracer and Simulation in a Surfactant Pilot for a Fractured Carbonate Yates Field • A.M. Cheng, J.T. Kwan, Kinder-Morgan |
| 11:30 | 153933 | Managing Risk in the Deployment of New Technology: Getting LoSal Into the Business • C.E. Reddick, T.A. Buikema, D. Williams, BP |

Tuesday, 17 April 1:30 to 5:00 p.m.

Madrid 2

SURFACTANT II

Session Chairpersons: Paul Willhite, University of Kansas
Varadarajan Dwarakanath, Chevron Corporation

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|------|--------|---|
| 1:30 | 154262 | A New Correlation To Predict the Optimum Surfactant Structure for Chemical EOR • S. Solairaj, C. Britton, Jun Lu, Do Hoon Kim, U. Weerasooriya, G.A. Pope, University of Texas at Austin |
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- 2:00 153960 **Surfactant-Mediated Spontaneous Imbibition in Carbonate Rocks at Harsh Reservoir Conditions** • P.Chen, K.K. Mohanty, University of Texas at Austin
- 2:30 154084 **Controlled Hydrophobe Branching To Match Surfactant to Crude Composition for Chemical EOR** • J.R. Barnes, K. Groen, A. On, Shell Global Solutions International; S. Dubey, C. Reznik, Shell Global Solutions; M.A. Buijse, Shell E&P; A.G. Shepherd, Nederlandse Aardolie Maatschappij
- BREAK: Networking, Exhibits | 3:00 - 3:30**
- 3:30 153969 **A New Class of Viscoelastic Surfactants for Enhanced Oil Recovery** • L. Siggel, M. Santa, Wintershall Holding; M. Hansch, M. Nowak, M. Ranft, H. Weiss, D. Hajnal, E. Schreiner, G. Oetter, J. Tinsley, BASF
- 4:00 154261 **Novel Large-Hydrophobe Alkoxy Carboxylate Surfactants for Enhanced Oil Recovery** • Jun Lu, C. Britton, S. Solairaj, P.J. Liyanage, Do Hoon Kim, S. Adkins, G.W. Pinnawala Arachchilage, U. Weerasooriya, G.A. Pope, University of Texas at Austin
- 4:30 154212 **Surfactant Optimization for EOR Using Advanced Chemical Computational Methods** • M.A. Buijse, Shell International E&P; K. Tandon, S. Jain, Shell India Markets; J-W. Handgraaf, Culgi; J.G.E.M. Fraaije, Leiden University
- Alternates**
- 154275 **The Impact of Microemulsion Viscosity on Oil Recovery** • D.L. Walker, C. Britton, Do Hoon Kim, S. Dufour, U. Weerasooriya, G.A. Pope, University of Texas at Austin

Tuesday, 17 April 1:30 to 5:00 p.m.

Madrid 3

CO₂ II

Session Chairpersons: James Smith, Devon Energy Corporation
Sunil Kokal, Saudi Aramco

- 1:30 154055 **CO₂ Mobility Control With Dissolved Polymers: A Core-Scale Investigation of Polymer-Rock and Polymer-Oil Interactions** • D. Rousseau, S. Renard, B. Prempain, C. Fejean, S. Betouille, IFP Energies nouvelles
- 2:00 154218 **Four-Phase Equilibrium Calculations of CO₂/Hydrocarbon/Water Systems Using a Reduced Method** • S. Mohebbinia, K. Sepehrnoori, University of Texas at Austin; R.T. Johns, Pennsylvania State University
- 2:30 154147 **Advanced Screening Technologies for the Selection of Dense CO₂ Foaming Surfactants** • M. Chabert, M. Morvan, Rhodia; L. Nabzar, IFPEN
- BREAK: Networking, Exhibits | 3:00 - 3:30**
- 3:30 154018 **Surfactant Formulation Evaluation for Carbon Dioxide Foam Flooding in Heterogeneous Sandstone Reservoir** • Y. Bian, G. Penny, N.C. Sheppard, CESI Chemical, a Flotek Company
- 4:00 153383 **A New Look at the Minimum Miscibility Pressure Determination From Slimtube Measurements** • A.M. Amao, S. Siddiqui, H. Menouar, B.L. Herd, Texas Tech University
- 4:30 154252 **The influence of O₂ Contamination on MMP and Coreflood Performance in Miscible and Immiscible CO₂ WAG** • Haifeng Jiang, EORI; L. Nuryaningsih, H. Adidharma, University of Wyoming

Tuesday, 17 April 1:30 to 5:00 p.m.

Seville 2

2012 SPE Symposium on Improved Oil Recovery

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NANOTECHNOLOGY

Session Chairpersons: Ben Shiau, University of Oklahoma
Mark Holtz, Praxair

- 1:30 154052 **Stabilization of Interfacially-Active-Nanohybrids/Polymer Suspensions and Transport Through Porous Media** • J.L. Baez, M.P. Ruiz, J. Faria, J.H. Harwell, B. Shiau, D.E. Resasco, University of Oklahoma
- 2:00 154308 **Nano Fluid Surfactant Improves Post Frac Oil and Gas Recovery in Hydrocarbon Rich Gas Reservoirs** • G. Penny, A. Zelenev, N. Lett, CESI Chemical; J. Paktinat, B.J. O'Neil, Trican Well Service
- 2:30 153337 **Study of Adsorption and Transportation Behavior of Nanoparticles in Three Different Porous Media** • Jianjia Yu, Cheng An, Di Mo, Ning Liu, Robert Lee, Petroleum Recovery and Research Center, New Mexico Institute of Mining and Technology

BREAK: Networking, Exhibits | 3:00 - 3:30

- 3:30 154228 **Generation of Nanoparticle-Stabilized Emulsions in Fractures** • M.R. Roberts, B. Aminzadeh, D.A. DiCarlo, S.L. Bryant, C. Huh, University of Texas at Austin
- 4:00 154285 **Nanoparticle Stabilized Carbon Dioxide in Water Foams for Enhanced Oil Recovery** • A.J. Worthen, H.G. Bagaria, Yunshen Chen, S.L. Bryant, Chun Huh, K.P. Johnston, University of Texas at Austin
- 4:30 153241 **Impacts of Timing of Crosslinker Addition on Water Shutoff Polymer Gel Properties** • P. Shriwal, R.H. Lane, Texas A&M University

Tuesday, 17 April 1:30 to 5:00 p.m.

Madrid 1

CONFORMANCE

Session Chairpersons: David Smith, Occidental Permian
Gerard Renard, IFP Energies Nouvelles

- 1:30 150492 **Improving Volumetric Efficiency in an Unconsolidated Sandstone Reservoir With Sequential Injection of Polymer Gels** • M. Saez, H.M. Paponi, Pluspetrol; F. Cabrera, G. Muniz, J. Romero, C. Norman, Tiorco
- 2:00 154004 **Snorre In-depth Water Diversion Using Sodium Silicate: Single Well Injection Pilot** • K. Skrettingland, N.H. Giske, J-H Johnsen, Statoil; A. Stavland, IRIS
- 2:30 153118 **Gel Dehydration by Spontaneous Imbibition of Brine From Aged Polymer Gel** • B. Brattekas, A. Haugen, A. Graue, University of Bergen; R.S. Seright, New Mexico Petroleum Recovery Research Center

BREAK: Networking, Exhibits | 3:00 - 3:30

- 3:30 153331 **Application of a Thermally Activated Particle System for Improved Sweep Efficiency in a Multilayer, Geologically Complex Waterflood** • J.L. Mustoni, Pan American Energy; F.A. Cabrera, E.J. Manrique, C.A. Norman, Tiorco
- 4:00 153155 **Water Shutoff at Ultralow Temperatures Using Organically Crosslinked Polymer Gels** • B.R. Reddy, F.E. Crespo, L. Eoff, Halliburton
- 4:30 152410 **Implementation of Relative Permeability Modifiers in Krasnoleninskoe Oil Field: Case Histories.** • S. Parkhonyuk, O.V. Levanyuk, M. Oparin, A. Sadykov, K. Mullen, B.R. Lungwitz, P. Enkababian, K.D. Mauth, Schlumberger; O. Sosenko, A. Karpukhin, TNK-BP

Alternates

- 154022 **Performance Evaluation of Thermally-Activated Polymers for Conformance Correction Applications** • M. Salehi, C.P. Thomas, R.

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Kevwitch, E. Manrique, R. Garmeh, M. Izadi, Tiorco

- 153384 **Study and Field Application of Organic/Inorganic Crosslinking Blocking Agent for High-Temperature Reservoir** • Caili Dai, University of Petroleum; Qing You, Peking University; Xuezhe Liu, China University of Petroleum; Wenming Wu, Long He, Northwest Oilfield of SINOPEC; Fulin Zhao, China University of Petroleum

Tuesday, 17 April 1:30 to 4:30 p.m.

Seville 3

SIMULATION

Session Chairpersons: Gaoming Li, University of Tulsa
Roy Knapp, University of Oklahoma

- 1:30 154019 **Accurate Modeling of Pore-Scale Film and Layer Flow for Three-Phase EOR in Carbonate Rocks With Arbitrary Wettability** • A.R.S. Al-Dhahli, S. Geiger, M.I.J. Van Dijke, Heriot-Watt University
- 2:00 152218 **Three-Phase Relative Permeability and Hysteresis Model for Simulation of Water Alternating Gas Injection** • H. Shahverdi, M. Sohrabi, M. Fatemi, Heriot Watt University
- 2:30 154083 **Coupling of Stress Dependent, Relative Permeability, and Reservoir Simulation** • S. Ofagbohunmi, R. Chalaturnyk, J. Leung, University of Alberta

BREAK: Networking, Exhibits | 3:00 - 3:30

- 3:30 154233 **Modeling of Foamed Gas Mobility in Permeable Porous Media** • H.O. Balan, M.T. Balhoff, Q.P. Nguyen, University of Texas at Austin
- 4:00 151043 **Upgridding Under Multiphase Flow Conditions** • M.G. Kelkar, M. Sharifi, University of Tulsa
- 4:30 154284 **Pore-Scale Modeling of Water Flooding in Mixed-Wet Rock Images: Effects of Initial Saturation and Wettability** • Y. Zhou, J. Helland, D.G. Hatzignatiou, International Research Institute of Stavanger

Alternate

- 154246 **Development of a Novel and Computationally-Efficient Discrete-Fracture Model To Study IOR Processes in Naturally Fractured Reservoirs** • A. Moinfar, A. Varavel, K. Sepehrnoori, University of Texas at Austin; R.T. Johns, Pennsylvania State University

Wednesday, 18 April 8:30 to 11:45 a.m.

Madrid 2

AIR/GAS MEOR

Session Chairpersons: Paul Bondor, Bontech
Betty Felber, Consultant

- 8:30 154170 **Experimental and Numerical Investigation on the Performance of Gas-Oil Gravity Drainage at Different Miscibility Conditions** • A.M. Ghasrodashti, R. Farajzadeh, Delft University of Technology; M. Verlaan, V.S. Suicmez; Shell Global Solutions International; H. Bruining, Delft University of Technology
- 9:00 154008 **Review of Gas Injection Projects** • J. Brodie, B. Jhaveri, T. Moulds, S. Mellemstrand Hetland, BP
- 9:30 153712 **The Importance of Second Liquid Phase Formation in CO₂ Injection into Bitumen Reservoirs and Its Effect on Production** • S. Feizabadi, J. Abedi, Z. Chen, University of Calgary

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BREAK: Networking, Exhibits | 10:00 - 10:15

- 10:15 154287 **Three-Phase During Steam Chamber Rise** • M. Murtaza, H. Dehghanpour, University of Alberta
- 10:45 150501 **Application of a Novel Amylum-Cellulose Nutrient System for Microbial Flooding in Dagang Oil Field, China** • Qing-xian Feng, Hai-ying Cheng, Xian-ping Ma, Dagang Oilfield Company, Petrochina; Han-ping Dong, Institute of Exploration and Development Research, Petrochina; Ting Ma, Key lab of Molecular Microbiology and Technology, Nankai University
- 11:15 153866 **Microbial EOR: A Quantitative Prediction of Recovery Factor** • E.C. Lacerda, Petrobras; V.I. Priimenko, A.P. Pires, North Fluminense State University

Wednesday, 18 April 8:30 to 11:45 a.m.

Madrid 3

CO₂ III

Session Chairpersons: Dane Cantwell, Legado Resources
Birol Dindoruk, Shell International E&P

- 8:30 154113 **A New Formulation for Decoupling of Large and Small-Scale Heterogeneities in Multilayered Reservoirs** • R. Ghanbarnezhad Moghanloo, University of Texas-Kingsville
- 9:00 151776 **New Insights Into Clay Swelling: Supercritical CO₂ Interaction With Montmorillonite** • F.M. Al Otaibi, M.H. Khaldi, J.J. Funk, S.X. Shen, Saudi Aramco
- 9:30 154222 **Ethoxylated Cationic Surfactants for CO₂ EOR in High Temperature, High Salinity Reservoirs** • Yunshen Chen, A.S. Elhg, B.M. Poon, University of Texas at Austin; Leyu Cui, Kun Ma, Rice University; S.Y. Liao, A. Omar, A.J. Worthen, University of Texas at Austin; G.J. Hirasaki, Rice University; Quoc P. Nguyen, K.P. Johnston, University of Texas at Austin

BREAK: Networking, Exhibits | 10:00 - 10:15

- 10:15 154277 **Recovery Mechanisms and Relative Permeability for Oil/Gas System at Near-Miscible Conditions: Effects of Immobile Water Saturation, Wettability, Hysteresis, and Permeability** • S.M. Fatemi, M. Sohrabi, M. Jamiolahmady, S. Ireland, Heriot-Watt University
- 10:45 153758 **Calculation of Minimum Miscibility Pressure Using Fast Slimtube Simulation** • W. Yan, M.L. Michelsen, E.H. Stenby, Technology University of Denmark
- 11:15 154062 **CO₂ Injection and CO₂ WAG in Dipped Gas Condensate and Volatile Oil Reservoirs** • M. Soroush, Norwegian University of Science and Technology; L. Hoier, Statoil; J. Kleppe, Norwegian University of Science and Technology

Wednesday, 18 April 8:30 to 11:45 a.m.

Seville 2 & 3

RESERVOIR CHARACTERIZATION

Session Chairpersons: Robert Barba, Integrated Energy Services
Mark Holtz, Praxair

- 8:30 153329 **A New Dynamic Wettability Alteration Model for Oil-Wet Cores During Surfactant Solution Imbibition** • M.H. Kalaei, University of Texas at Austin; D.W. Green, G.P. Willhite, University of Kansas
- 9:00 154202 **Oil Recovery by Sequential Waterflooding: The Effects of Aging at Residual Oil and Initial Water Saturation** • N. Loahardjo, Xina Xie, W. Winto, J. Buckley, N.R. Morrow, University of Wyoming

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Changes/additions after 6 April 2012 may not be reflected

- 9:30 154129 **A Dimensionless Capillary Pressure Function for Imbibition Derived From Pore-Scale Modeling in Mixed-Wet Rock Images** • Y. Zhou, J.O. Helland, D.G. Hatzignatiou, IRIS, University of Stavanger
- BREAK: Networking, Exhibits | 10:00 - 10:15**
- 10:15 154169 **Pore Scale Evaluation of Polymers Displacing Viscous Oil: Computational Fluid Dynamics Simulation of Micromodel Experiments** • T. Clemens, OMV; K. Tsikouris, Icon; M. Buchgraber, L. Castanier, A. Kovscek, Stanford University
- 10:45 154138 **Towards a New Theory for Improved Oil Recovery From Sandstone Reservoirs** • E. Sunde, Statoil; B.-L. Lillebo, T. Torsvik, Uni-CIPR
- 11:15 154178 **Surfactant Flooding in Heterogeneous Formations** • A. Lohne, I. Fjelde, IRIS

Wednesday, 18 April 8:30 to 11:45 a.m.

Madrid 1

FOAM CONFORMANCE

Session Chairpersons: David Smith, Occidental Permian
Paul Willhite, University of Kansas

- 8:30 154205 **Assessment of CO₂-Soluble Surfactants for Mobility Reduction Using Foam Stability and Mobility Measurements and CT Imaging** • R.M. Enick, D. Xing, S. McNulty, A. Pallone, P. Koronaios, University of Pittsburgh; G. Biesmans, Huntsman
- 9:00 153942 **Understanding Foam Flow With a New Foam EOR Model Developed From Laboratory and Field Data of the Naturally Fractured Cantarell Field** • F.A. Skoreyko, Computer Modelling Group; A.P. Villavicencio, Pemex; H. Rodriguez Prada, Independent Contractor for Pemex; Q.P. Nguyen, University of Texas at Austin
- 9:30 154024 **Multiple Foam States and Long-Distance Foam Propagation in EOR Displacement** • E. Ashoori, Delft University of Technology; D. Marchesin, Instituto Nacional de Matematica Pura e Aplicada, Rio de Janeiro; W.R. Rossen, Delft University of Technology
- BREAK: Networking, Exhibits | 10:00 - 10:15**
- 10:15 151955 **Studies on Foam Flooding EOR Technique for Daqing Reservoirs After Polymer Flooding** • Hou Qingfeng, Zhu Youyi, Luo Yousong, Weng Rui, State Key Laboratory of Enhanced Oil Recovery, Research Institute of Petroleum Exploration & Development, CNPC
- 10:45 152113 **Assessment of Foam for GOR Control To Optimize a Miscible Gas Injection Recovery** • H. Cubillos, J. Montes, C. Prieto, P. Romero, Cepsa
- 11:15 152907 **Anomalous Foam Fractional Flow Solutions at High Injection Foam Quality** • A. Roostapour, S.I. Kam, Louisiana State University

Wednesday, 18 April 8:30 to 11:45 a.m.

Salon 2 & 3

BEST OF IOR: CAMBRIDGE

Session Chairpersons: William Lawson, University of Tulsa
Kenneth Oglesby, Impact Technologies

- 8:30 B27 **Adsorption at the Calcite:Liquid Interface With Molecular Precision** • I.N. Stocker, K.L. Miller, S.Y. Lee, I.R. Collins, S.M. Clarke, K.J. Webb, BP Institute Cambridge University; C.J. Kinane (ISIS), A. Wildes (ILL)
- 9:00 A23 **Visual Investigation of Extra-heavy Oil Recovery by CO₂/N₂ Foam Injection** • A. Emadi, M. Sohrabi, M. Jami, S. Ireland, G. Robertson, Heriot-

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Watt University

9:30	A16	Cycling Steam Injection Pilot Project: A Case Study with Successful Results • G.A. Carvajal, Independent Consulting; G. Parra, J. Guevara, A. Suarez, R. Tineo PDVSA
BREAK: Networking, Exhibits 10:00 - 10:15		
10:15	A26	Oil Recovery by Water-Alternating-Gas Injection Under Low Gas-Oil IFT in Water-Wet and Mixed-Wet Rocks • S.M. Fatemi, M. Sohrabi, M. Jamiolahmady, S. Ireland, G. Robertson, Heriot-Watt University
10:45	A14	Low Salinity Waterflood, Endicott, Alaska: Geochemical Study and Field Evidence of Multicomponent Ion Exchange • A. Lager, K. Webb, J. Seccombe, BP
11:15	B33	Low Salinity Oil Recovery: Increasing Understanding of the Underlying Mechanisms of Double Layer Expansion • S. Clarke, S.Y. Lee, University of Cambridge