Academic Curriculum Vitae

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Education:

Universities Attended	Dates	Degree
UBC, Vancouver, Canada	1981-1985	Ph.D. Metallurgy and Materials Science
UBC, Vancouver, Canada	1976-1981	B.A.Sc. Chemical Engineering

PhD. Thesis Title: Novel design criteria for direct coal liquefaction reactors.
Supervisor: Dr. Ernest Peters

Academic Employment:

2001/08 – Present Department of Chemical Materials Engineering,
University of Alberta, Edmonton, Alberta T6G 2G6
Professor and NSERC Industrial Research Chair
In Petroleum Thermodynamics

1985/06 – 2004/06 Department of Chemical Engineering and Applied Chemistry, University of Toronto, Toronto, Ontario, M5S 1A4
Adjunct Professor (2001 - 2004)
Professor (1995 - 2001)
Associate Professor (1990 - 1995)
Assistant Professor (1985 - 1990)

Sabbaticals:

2018-2019	A mix of high-level teaching, service and research activities will be pursued at UCL, London, UK; Ministry of Energy and Mines, Lima, Peru; UBC, Vancouver Canada.
2011-2012	Acoustic Mapping of Flow and Composition in Porous Media UPPA/TOTAL, Pau France
2003	Thermodynamics in Engineering Education, ITESM, Guadalajara Mexico
1998-1999	Solid-Liquid-Liquid-Vapour Phase Behavior in Reservoir Fluids, French Petroleum Institute (IFP) Reuil Malmaison, France
1997	Phase Behavior in Refining Operations, Syncrude Canada Ltd. Research Centre, Edmonton, Canada

1991-1992 Complex phase equilibria arising in hydrocarbon fluids, Technical University of Delft, the Netherlands

Awards and Honors:

2001-2017 NSERC Industrial Research Chair in Petroleum Thermodynamics (3 terms)

2011/09 to 2012/08 Visiting Professorship, University of Pau, Complex Fluid Laboratory, Pau, France

2009 Delta Xi Teaching Excellence Award

2006 "Leader in Innovation" - Partnership Group for Science and Engineering, Ottawa, Canada
2003 Visiting Professorship, ITESM, Guadalajara, Mexico
1998-1999 Visiting Professorship, French Petroleum Institute (IFP), Reuil Malmaison, France
1997 Visiting Professorship, Syncrude Research Ltd., Edmonton, Canada
1991-1992 Visiting Professorship, Technical University of Delft, the Netherlands
1981-1985 British Columbia Research Ltd., Doctoral Fellowship

Professional Societies (current):

2010- The American Institute of Chemical Engineers
2001- Member of the Association of Professional Engineers, Geologists, and Geophysicists of Alberta (P.Eng.)

2001- Member of the American Society for Engineering Education
2006- Member of the Canadian Institute of Mining, Metallurgy and Petroleum
2005 - Member of American Chemical Society
1990- Member of the Computer Modeling Group
1981- Member of Chemical Institute of Canada
1979- Member of the Canadian Society for Chemical Engineering

Professional Service:

National and International (current/recent)

- European Project (S4CE) Science 4 Clean Energy 2017-2021, Chair of the International Advisory Board.
- International Union of Pure and Applied Chemistry (IUPAC) Project on Recommended Reference Materials for Phase Equilibria Studies (2017 – present), task group member.
- PPEPPD 2019 Vancouver Canada, Conference Organization Committee Chair, and President of PPEPPD Inc.
- SAS 2018 XVII – Conference Organizational Committee – Committee Member
- European Project (SxT) Shale and the Environment 2016-2018, Chair of the International Advisory Board.
- Carbon Management Canada (National Centre of Excellence) 2009-2014, Technical Management Committee and Theme leader

- Chemical and Materials Research Consultants Ltd., 2005-present, President.
- Advisory Committee and Conference Organizing Committee member, annual Petrophase series of conferences, 2003 – present
- Associate Editor of Energy and Fuels, 2008 – present
- Canadian Oilsands Network for Research and Development (CONRAD) Network Coordinating Council, 2001 – 2013
- Oilsands 2014 conference organizational committee

University of Alberta

- General Faculties Council - elected Member for Department Chair Selection and Review Committees –sit on chair and selection committees on behalf of the Provost 2013 - 2016
- Provost Digital Learning Committee (PDLC) – University of Alberta –Develop and review policies, adjudicate competitions for course redevelopment awards 2013 – present
- Presidential Transition Committee 2014-2015
- General Faculties Council 2009 - 2011
- Oil sands Engineering Advisory Panel 2005 - present
- University of Alberta Campus Open Spaces Advisory Committee 2007-2011
- University of Alberta United Way Campaign Co-chair (2005- 2010)

Research Interests:

The research work of my group focuses on understanding the thermophysical properties of hydrocarbon resources, and on the implications for process design in both batch and continuous systems that these properties impose. The group examines phase behaviors at bulk, colloidal and more recently at nano length scales and frequently examines the interaction between hydrodynamics and thermodynamics on outcomes. My research group emphasizes the importance of physical phenomena such as hydrodynamics, interfaces, phase equilibria in the design and operation of both batch and continuous multiphase processes. For example, our pioneering work on X-ray view-cell technology development and its application in the petroleum and heavy oil sectors set the stage for the creation of an industrial research chair in petroleum thermodynamics (created August 2001). The x-ray view cell system we now employ permits simultaneous phase density and composition measurement. We are untangling the complex phase behaviour and kinetic phenomena associated with heavy oil/bitumen production, transport and refining.

Issues related to liquid-liquid dispersions and emulsions are also a recurring theme in my research. Over the years we have tackled a number of difficult issues from dynamic vs. steady state drop size distributions in continuous vs. batch reactors where gas bubbles or impellers are used to agitate the fluids, to the impact of packing on the creation of secondary drop distributions in coalescers to behaviors in unconfined media. This work has found numerous applications, e.g.: from challenging the validity of a standard in the metallurgical industry to showing how oil slicks break-up and or emulsify in breaking waves - a contribution that provides a basis for the creation of a priori models for slick dispersion/emulsification in marine environments that formerly eluded practitioners.

Our work in both areas is leading to the development of sensors and better process definitions that continue to spark interest in industries as diverse as pharmaceutics, nonferrous metallurgy and hydrocarbon production, transport and refining.

Research by the Numbers:

Since 2001, as the NSERC Industrial Research Chair in Petroleum Thermodynamics at the University of Alberta, J. M. Shaw has been a principal investigator on research projects and initiatives with a value exceeding $ 80 million including Carbon Management Canada (A national centre of excellence 2009-2014, ~ $60 million) where he was a member of the technical management committee and a research theme leader, collaborative equipment and project grants with other researchers at the University of Alberta and across Canada (~ $5 million) and as a sole principal investigator (~ $ 16 million). Most of these projects and initiatives have included industrial participants including his current close corporate partners BP, ConocoPhillips, Nexen Energy ULC, Shell, Total, and VMG, in addition to the Natural Sciences and Research Council of Canada and Alberta Innovates Energy and Environment Solutions. He has contributed to successful proposals in Canada and abroad with a value exceeding $ 20 million during the same period.

Since 1985, he has supervised research programs for more than 20 PhD students and more than 30 MSc students, published more than 120 peer reviewed articles (h-index = 27, i10-index = 67), delivered more than 70 invited, keynote or plenary lectures, and transferred enabling technologies to industries as diverse as non-ferrous metallurgy, to oil and gas and pharmaceutics.

Teaching:

John M. Shaw is a strong proponent of Blended Learning (a well-supported mix of interactive on-line and reinforcing and enriching and active in-class learning methodologies). He received a competitive $100,000 grant to apply this approach to teaching process design to final year undergraduate students (2013-2015), and has since applied the approach formally to undergraduate and graduate courses in Classical (Industrial) Thermodynamics for Chemical/Petroleum Engineers. He publishes research papers based on his teaching experiences with Marnie V. Jamieson, his teaching partner.

John M. Shaw is an equally strong proponent of internationalization in Chemical Engineering Education at both the undergraduate and graduate levels. For example, he has sponsored numerous summer research internships for undergraduate students from the Indian Institutes of Technology, through the MITACS program, and helps University of Alberta students obtain international summer placements primarily in Europe. At the graduate level, he has received MSc students from the UK, the Czech Republic and Israel (engaged in short term research initiatives), and has sent graduate students to the USA, Denmark and France to participate in short-term research and course based programs. He is also an enthusiastic participant in the joint MSc. Program in Chemical and Materials Engineering between the University of Alberta and l'Université de Lorraine/École des Mines de Nancy. He has graduated two students so far and will graduate two more by September 2018.

Publications:

Patents:

Shaw, J. M. A methanol production process patent. USA patent # 6,736,955 (2004).

Shaw, J.M. and Oloman, C.W. A patent concerning the removal of chloride from process solutions within chemical pulping processes (for wood). U.S.A. Patent # 4,717,450 (1988).

Thesis:

Shaw, J.M., "Novel Design Criteria for Direct Coal Liquefaction Reactors", Ph.D. Thesis, U.B.C. (April, 1985).

Book Chapters:

Shaw, J. M.; Satyro, M. A.; Yarranton, H. W. Chapter 8, The Phase Behaviour and Properties of Heavy Oils. In Springer Handbook of Petroleum Technology by Hsu, C. S.; Robinson, P. R. Eds.Springer, New York, U.S.A., **2017**.

Jamieson, M.; Shaw, J. M.; Nocente, N.; Lamm, M. H.; Brewer, C. E.; Miller , G.; Zhu, Q.; Altaii, K.; Pierrakos, O.; Bennedsen, J. Flipping Engineering. In The Flipped College Classroom: Conceptualized and Re-Conceptualized. By Green, L. S.; Banas, J. R.; Perkins, R. A. Eds. Springer International Publishing, Switzerland, **2017**, 125-147.

X.Y. Zou, J.M. Shaw, Phase Behavior of Heavy Oils. Asphaltenes, Heavy Oil & Petroleomics, Mullins ed., 19, 489-510 (2007).

X.Y. Zou, J.M. Shaw, Phase Behavior of Hydrocarbon Mixtures. Encyclopedia of Chemical Processing, pp. 2067-2076 (2006). Ed. Sunggyu Lee, Taylor & Francis, vol. 4, pp. 2067-2076 (2006)

Refereed Journal Articles:

Guevara Level, P., Santos Silva, H., Spillebout, F., Michaelian, K. H., Shaw, J. M., Baraille, I., and Bégué, D., Discerning Inter- and Intramolecular Vibrations of Sulfur Polyaromatic Compounds. The Journal of Physical Chemistry A, **2017**. 121(38): p. 7205-7218

Stewart, R. A.; Shaw, J. M. Interface Renewal and Concentration Shock Through Sloughing — Accounting for the Dissonance Between Production Models and Measured Outcomes for Solvent-Assisted Bitumen Production Processes. S*PE Reservoir Evaluation & Engineering* 2017 (https://doi.org/10.2118/186108-PA)

Bazyleva, A.; Blokhin, A. V.; Zaitsau, D. H.; Kabo, G. J.; Paulechka, E.; Kazakov, A.; Shaw, J. M. Thermodynamics of the Antiviral and Antiparkinsonian Drug Amantadine Hydrochloride: Condensed State Properties and Decomposition. *Journal of Chemical & Engineering Data* **2017**, (Accepted on April 11, 2017)

Qin, C.; Becerra, M.; Shaw, J. M. Fate of Organic Liquid-Crystal Domains during Steam-Assisted Gravity Drainage/Cyclic Steam Stimulation Production of Heavy Oils and Bitumen. *Energy & Fuels* **2017** (Accepted on April 11, 2017)

Stewart, R. A.; Shaw, J. M. On Vibration-Induced Fluid and Particle Motion in Unconsolidated Porous Media: Observations and Dimensional Scaling Analysis. *Transport in Porous Media* **2017**, 116 (3), 1031-1055.

Ollinger, J.; Pourmohammadbagher, A.; Quast, A. D.; Becerra, M.; Shumaker-Parry, J. S.; Shaw, J. M. Gold Core Nanoparticle Mimics for Asphaltene Behaviors in Solution and at Interfaces. *Energy & Fuels* **2016,** *30* (12), 10148-10160.

Ahitan, S.; Shaw, J. M. Quantitative Comparison between Predicted and Experimental Binary n-Alkane + Benzene Phase Behaviors Using Cubic and PC-SAFT EOS. *Fluid Phase Equilibria* **2016,** *428*, 4-17

Pourmohammadbagher, A.; Shaw, J. M. Probing the Impact of Asphaltene Contamination on Kaolinite and Illite Clay Behaviors in Water and Organic Solvents: A Calorimetric Study. *Energy & Fuels* **2016,** *30* (8), 6561-6569.

Pourmohammadbagher, A.; Shaw, J. M. Probing the Role of Water Chemistry on the Behavior of Clays in Process and Natural Environments Using Solution Calorimetry. *Energy & Fuels* **2016,** *30* (7), 5964-5969.

Dini, Y.; Becerra, M.; Shaw, J. M. Phase Behavior and Thermophysical Properties of Peace River Bitumen + Propane Mixtures from 303 K to 393 K. *Journal of Chemical & Engineering Data* **2016,** *61* (8), 2659-2668.

Pouralhosseini, Sajjad, Eslami, Fatemeh, Elliott, Janet, Shaw, John, "Modeling the Phase Behavior of Asphaltene + Toluene + Polystyrene Mixtures – A Depletion Flocculation Approach", Energy & Fuels, 2016, 30(2), pp 904-914.

Mortazavi-Manesh, Sepideh, Shaw, J.M., "Effects of Pressure on the Rheological Properties of Maya Crude Oil", Energy & Fuels, 2016, 30(2), pp 759-765.

Mortazavi-Manesh, Sepideh, Shaw, J.M., "Effects of Diluents on the Rheological Properties of Maya Crude Oil", Energy & Fuels, 2016, 30(2), pp 766-772.

Ahitan, S., Satyro, M.A., Shaw, J.M., "Systematic Misprediction of n-Alkane + Aromatic and Naphthenic Hydrocarbon Phase Behavior Using Common Equation of State", Journal of Chemical & Engineering Data 2015, 60(11), pp 330-318.

Stewart, R. A., Shaw, J.M., " A dynamic pressure view cell for acoustic stimulation of fluids – Micro-bubble generation and fluid movement in porous media", Review of Scientific Instruments 2015, Vol 86, Issue 9, pp 1-13.

Pourmohammadbagher, Amin, Shaw, J.M., "Probing Contaminant Transport to and from Clay Surfaces in Organic Solvents and Water Using Solution Calorimetry", Environment Science & Technology 2015, 49(18), pp 10841-10849.

Pouralhosseini, Sajjad, Alizadehgiashi, Moien, Shaw, John M., "On the Phase Behavior of Athabasca Asphaltene + Polystyrene Mixtures", Energy & Fuels 2015, 29(8), pp 4855-4863.

Pouralhosseini, Sajjad, Shaw, J.M., "Temperature-Independent Colloidal Phase Behavior of Maya Asphaltene + Toluene + Polystyrene Mixtures", Energy & Fuels 2015, 29(8), pp 4864-4873.

Alizadehgiashi, Moien, Shaw, John M.,"Fickian and non-Fickian diffusion in heavy oil + light hydrocarbon mixtures", Energy & Fuels, 2015, 29 (4), pp 2177-2189.

Cassiede, Marc, Shaw, John M., "Non-Intrusive, High-Resolution, Real-time, Two-Dimensional Imaging of Multiphase Materials Using Acoustic Array Sensors", Review of Scientific Instruments, 86, 044902 (2015).

Dadgostar, Nafiesh, Shaw, John M., "On the use of departure function correlations for hydrocarbon isobaric liquid phase heat capacity calculation", Fluid Phase Equilibria 385 (2015) pp 182-195.

Bazyleva, Ala, Becerra, Mildred, Stratiychuk-Dear, Dmytro, Shaw, John M., "Phase behavior of Safaniya vacuum residue", Fluid Phase Equilibria, 2014, 380(0), pp 28-38.

Michaelian, K.H., Oladepo, S.A., Shaw, J.M., Liu, X., Begue, D., Barraille, I., "Raman and Photoacoustic infrared spectra of fluorene derivatives: Experiment and calculations", Vibrational Spectroscopy, Volume 74, September 2014, pp 33-46.

Amani, Mohammad J., Gray, Murray R., Shaw, John M., "On correlating water solubility in ill-defined hydrocarbons", Fuel, 2014, Vol 134, October 2014, pp 644-658.

Stewart, Robert, Wood, Caitlin V., Murowchuck, Steven J., Shaw, John M., "Phase order inversion during heavy oil and bitumen production with solvent addition", Energy & Fuels, 2014, 28(7), pp 4835-4848.

Spillebout, Faustine, Bégué, Didier, Baraille, Isabelle, Shaw, John M., "On Discerning Intermolecular Vibrations in Experimental Acene Specra", Energy & Fuels, 2014, 28(5), pp 2933-2947.

Amani, M.J., Gray, M.R., Shaw, J.M., "The phase behavior of Athabasca bitumen + toluene + water ternary mixtures", Fluid Phase Equilibria, 370(2014), pp 75-84.

Jampana, Phanindra, Shah, Sirish, Shaw, John, "A region growing method for detecting interfaces in X-ray view cell images", IEEE Sensors Journal, 2014, 14(7), pp 2283-2292.

Mortazavi-Manesh, Sepideh, Shaw, John, "Thixotropic rheological behavior of Maya crude oil", Energy and Fuels, 2014, 28(2), pp 972-979.

Amani M*., Gray M., Shaw, J., "Volume of mixing and solubility of water in Athabasca bitumen at high temperature and pressure", Fluid Phase Equilibria, 358(2013), pp 203-211.

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Satyro, M*, Shaw, J, Yarranton, H, "A Practical Method for the Estimation of Oil and Water Mutual Solubilities", Fluid Phase Equilibria, 355 (2013), pp 12-25.

Lastovka, V, Shaw, J.*, "Predictive correlations for ideal gas heat capacities of pure hydrocarbons and petroleum fractions", Fluid Phase Equilibria, 2013(356), pp 338-370.

Pourmohammadbagher, Amin*, Shaw, J.M., "Excess Enthalpy and Excess Volume for Pyridine + Methyldiethanolamine and Pyridine + Ethanolamine Mixtures", Journal of Chemical Engineering Data, 2013, 58(8), pp 2202-2209.

Amani, M., Gray, M., Shaw, J.*, "Phase behavior of Athabasca bitumen water + mixtures at high temperatures and pressure", Journal of Supercritical Fluids, 2013 (77), pp 142-152.

Fadaei, Hossein, Shaw, J.M., Sinton, David*, "Bitumen-Toluene Mutual Diffusion Coefficients Using Microfluidics", Energy & Fuels, 2013, 27(4), pp 2042-2048.

Dadgostar, Nafiseh*, Shaw, J.M., "Predictive correlations for liquid heat capacity - including the critical region", Fluid Phase Equilibria, 344 (2013), pp 139-151.

Nikooyeh, Kasra*, Shaw, J.M., "On Enthalpies of Solution of Athabasca Pentane Asphaltenes and Asphaltene Fractions", Energy & Fuels, 2013 (27), pp 66-74.

Saber, Nima*, Zhang, Xiaohui, Zou, Xiang-Yang, Shaw, J.M., "Simulation of the phase behaviour of Athabasca vacuum residue + n-alkane mixtures", Fluid Phase Equilibria, 313 (2012), pp 25-31.

Bagheri Reza S*., Gray Murray R., Shaw J.M., McCaffrey C.*, "In Situ Observation of Mesophase Formation and Coalescence in Catalytic Hydroconversion of Vacuum Residue Using a Stirred Hot-Stage Reactor", Energy & Fuels, 2012 (26), pp 3167-3178.

Khammar, M*, Shaw, J.M., "Estimation of phase composition and size of asphaltene colloidal particles in mixtures of asphaltene + polystyrene + toluene at 293 K atmospheric pressure", Fluid Phase Equilibria, 2012 332 (10), pp 105-119.

Bagheri, R., Masik, B., Arboleda, P., Wen, Q., Michaelian, K., Shaw, J., "Physical Properties of Liquid Crystals in Athabasca Bitumen Fractions", Energy & Fuels 2012, 26(8), pp 4978-4987.

Nikooyeh, K, Bagheri, S.R., Shaw, J.M., "Interactions Between Athabasca Pentane Asphaltenes and n-Alkanes at Low Concentrations", Energy & Fuels 2012, 26, (3), pp 1756-1766.

Nikooyeh, K., Shaw, J.M., "On the Applicability of the Regular Solution Theory to Asphaltene + Diluent Mixtures", Energy & Fuels 2012 26, (1), pp576-585.

Khammar, M., Shaw, John M., "Liquid–Liquid Phase Equilibria in Asphaltene + Polystyrene + Toluene Mixtures at 293 K", Energy Fuels, 2012, *26* (2), pp 1075–1088.

Saber, N., Satyro, M., Yarranton, Harvey, Shaw, J.M., "Multiphase Equilibrium Prediction for Ill-defined Asymmetric Hydrocarbon" Hydrocarbon World, 2012, 6(2), pp 51-57.

Eyssautier, Joëlle, Espina, Didier, Gummel, Jeremie, Levitz, Pierre, Becerra, M., Shaw, John, Barre, Loic, "Mesoscale Organization in a Physically Separated Vacuum Residue: Comparison to Asphaltennes in a Simple Solvent", Energy & Fuels, 2012, 26(5), pp 2670-2687.

Michaelian, K.H., Wen, Q., Billinghurst, B.E., Shaw, J.M., Lastovka, V., "Far- and mid-infrared photoacoustic spectra of tetracene, pentacene, perylene and pyrene", Vibrational Spectroscopy, 2012, 58(0), pp 50-56. January 2012.

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Dadgostar, Nafiseh, Shaw, John M., "A predictive correlation for the constant-pressure specific heat capacity of pure and ill-defined liquid hydrocarbons", Fluid Phase Equilibria, 2012, 313 (15), pp 211-226.

Nikooyeh, Kasra, Shaw, John M., "On the Applicability of the Regular Solution Theory to Asphaltene + Diluent Mixtures", Energy & Fuels, 2012, 26 (1), pp 576-585.

Bagheri, S. Reza, Shaw John M., "Observation of Liquid-Crystal Formation during Melting of D-(+)-Glucose", Journal of Agricultural and Food Chemistry, 2011, 59(23), pp12605-12609.

Khammar M., Shaw J. M., "Phase behaviour and phase separation kinetics measurement using acoustic arrays" Review of Scientific Instruments, 2011, 82(10), pp 104902.

Amundaraín, Jesús, Chodakowski, Martin, Long, Bingwen, Shaw, John M., "Characterization of Physically and Chemically Separated Athabasca Asphaltenes Using Small-Angle X-ray Scattering", Energy & Fuels, 2011, 25 (11), pp 5100-5112.

Bazyleva, Ala, Fulem, Michal, Becerra, Mildred, Zhao, Bei, Shaw, John M., "Phase Behavior of Athabasca Bitumen", Journal of Chemical and Engineering Data, 2011, 56(7) pp 3242-3253.

Saber, Nima, Shaw, John M., "On the phase behaviour of Athabasca vacuum residue plus n-decane", Fluid Phase Equilibria, 2011, 302(1-2), pp 254-259.

Sadighian,Ardalan, Becerra, Mildred, Bazyleva, Ala, Shaw, John, "Forced and Diffusive Mass Transfer between Pentane and Athabasca Bitumen Fractions", Energy & Fuels, 2011, 25(2), pp 782-790.

Hasan, MD. Anwarul, Shaw, John, M., "Rheology of Reconstituted Crude Oils: Artifacts and Asphaltenes", Energy & Fuels, 2010, 24 (12), pp 6417–6427.

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Bagheri, S., Bazyleva, Ala, Gray, Murray, McCaffrey, William, Shaw, John, M., "Observation of Liquid Crystals in Heavy Petroleum Fractions", Energy and Fluids, 2010, 24(8), pp 4327-4332.

Obiosa-Maife, C. and Shaw, John M., "Toward Identification of Molecules in Ill-defined Hydrocarbons Using Infrared, Raman, and NMR Spectroscopy", Energy and Fluids 2010, 25(2), pp 460-471.

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Bazyleva, Ala B., Hasan, MD Anwarul, Fulem, Michal, Becerra, Mildred, Shaw, John M., "Bitumen and Heavy Oil Rheological Properties: Reconciliation with Viscosity Measurements" Journal of Chemical Engineering Data, 2010, 55(3), pp 1389-1397.

Khammar, Merouane, Shaw, J.M. "Speed of sound prediction in 1 − n-alcohol + n-alkane mixtures using a translated SAFT-VR-Mie equation of state", Fluid Phase Equilibria 2010, 288(1-2), pp 145-154.

Saber, N. and Shaw, J.M., "Toward multiphase equilibrium prediction for ill-defined asymmetric hydrocarbon mixtures", Fluid Phase Equilibria, 2009, 285(1-2), pp 73-82.

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Michaelian, K.H., Billinghurst, B.E., Shaw, J.M., and Lastovka, V., "Far-Infrared Photoacoustic Spectra of Tetracene, Pentacene, Perylene and Pyrene", Vibrational Spectroscopy 49 (2009) 28-31.

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Sallamie, N., Shaw, J.M. "Heat Capacity for Polynuclear Aromatic Solids Using Vibration Spectra", Fluid Phase Equilibria, 237, 100-110 (2005).

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Ahitan, Sourabh; Luo, Miao; McLaughlin John; Shaw, John. M.; On Cubic EOS Interaction Parameter Prediction for Long Chain n- Alkane + Aromatic Binary Mixtures. 2017 AIChE Annual Meeting, October 29 - November 3, Minneapolis, USA (oral presentation).

Ahitan, Sourabh; Shaw, John. M.; Bubble Pressure Measurement and Prediction for n-Alkane + Naphthenic Hydrocarbon Binary Mixtures. 2017 AIChE Annual Meeting, October 29 - November 3, Minneapolis, USA (oral presentation).

Pourmohammadbagher, Mohammad; Pourmohammad, Amin; Shaw, John M.; Fickian to Single-File Diffusion Transition in Nano-Colloids. 67th Canadian Chemical Engineering Conference (CSChE 2017), October 22-25, Edmonton, Alberta, Canada (Oral Presentation).

Shaw, John M.; Diffusion in Bitumen and Heavy Oil + Diluent Mixtures. Honourary Symposium in Recognition of Jacob Masliyah for Outstanding Contributions in Heavy Oil Processing. 67th

Canadian Chemical Engineering Conference (CSChE) 2017, October 22-25, Edmonton, Alberta, Canada (Oral Presentation).

Pourmohammadbagher, Amin; Shaw, John M.; Differences between C5 Asphaltenes and Nanoparticulate Materials in Athabasca Bitumen. 67th Canadian Chemical Engineering Conference (CSChE 2017), October 22-25, Edmonton, Alberta, Canada (Oral Presentation).

Amani, Mohammad; **Shaw, John M.;** Generalized Phase Diagram for Heavy Oil and Bitumen + Diluent Mixtures. 67th Canadian Chemical Engineering Conference (CSChE 2017), October 22-25, Edmonton, Alberta, Canada (Oral Presentation).

Pourmohammadbagher, Amin; Shaw, John M.; Sorption of Organic Liquids on Kaolinite and Illite Clays in Industrial Process and Natural Environments. 67th Canadian Chemical Engineering Conference (CSChE 2017), October 22-25, Edmonton, Alberta, Canada (Oral Presentation).

Pourmohammadbagher, Amin; Shaw, John M.; Toward Quantitative Measurement of Clay Content in Water: Enthalpic End Point Detection for the Methylene Blue Test. 67th Canadian Chemical Engineering Conference (CSChE 2017), October 22-25, Edmonton, Alberta, Canada (Poster Presentation).

Ahitan, Sourabh; Luo, Miao; McLaughlin John; Shaw, John. M.; On Cubic EOS Interaction Parameter Prediction for Long Chain n- Alkane + Aromatic Binary Mixtures. 67th Canadian Chemical Engineering Conference (CSChE) 2017, October 22 – 25, Edmonton, Alberta, Canada (Oral presentation).

Ahitan, Sourabh; Shaw, J. M. Bubble Pressure Measurement and Prediction for n-Alkane + Naphthenic Hydrocarbon Binary Mixtures. 67th Canadian Chemical Engineering Conference (CSChE) 2017, October 22 – 25, Edmonton, Canada (Oral presentation).

Becerra, Mildred; Linden, Nicolas; Escobar, Nympha; Shaw, John M.; Rheology of Reconstituted Safaniya Vacuum Residue Based on Physical and Chemical Separation. 67th Canadian Chemical Engineering Conference (CSChE 2017), October 22-25, Edmonton, Alberta, Canada (Oral Presentation).

Ahitan, Sourabh; Luo, Miao; McLaughlin John; Shaw, John M.; On Cubic EOS Interaction Parameter Prediction for Long Chain n- Alkane + Aromatic Binary Mixtures. 21st European Conference on Thermophysical Properties (ECTP) 2017, September 3 - 8, Graz, Austria (Oral presentation).

Ahitan, Sourabh; Shaw, John M.; Bubble Pressure Measurement and Prediction for n-Alkane + Naphthenic Hydrocarbon Binary Mixtures. 21st European Conference on Thermophysical Properties (ECTP) 2017, September 3 – 8, Graz, Austria (oral presentation).

***Kumar, Anupam**; Shaw, John M.; The Interaction Between Depletion Flocculation And Molecular Liquid-Liquid Phase Separation Mechanisms. 21st European Conference on Thermophysical Properties (ECTP) 2017 September 3 - 8, 2017, Graz, Austria (oral presentation).

Pourmohammadbagher, Amin; Shaw, John M.; Displacement of Water from Clays by Hydrocarbons. UK Colloids 2017, July 10-12, Manchester, United Kingdom (Oral Presentation)

***Li Lin;** Shaw, John M.; Liquid Crystal Domain Formation and Structure in Humic Substances + Water + Hydrocarbon Mixtures. Faculty of Engineering Graduate Research Symposium 2017, June 27-28, University of Alberta, Edmonton, Alberta, Canada (poster presentation).

***Huang, Xinci;**Pourmohammadbagher, Amin; Zeng, Hongbo; Shaw, John M.; Mimicking the Behaviors of Contaminated Clays in Tailings Ponds Using Functionalized Silica Nanoparticles. Faculty of Engineering Graduate Research Symposium 2017, June 27-28, University of Alberta, Edmonton, Alberta, Canada (poster presentation).

Jamieson, Marnie V.; Goettler, Leah; Liu, Albert; Shaw, John M.; To Teach is to Learn: Student and Instructor Perspectives on Assignment Development as a Springboard to Deep Learning. 13th International CDIO Conference, June 18-22, 2017, Calgary, Alberta, Canada (oral presentation)

Shaw, John M.; Invited Panel Discussion Organizer and Leader: Research Needs for the Environmentally Conscious Development of Geo-Energy Resources - Short Term and Long Term, other contributors included Pickard Trepess, Michael Chendorain, David Cole, Paul Ashby. Shale and the Environment, June 11-13, 2017, Florence, Italy.

Becerra, Mildred; Linden, Nicolas; Escobar, Nympha; Shaw, John M.; Rheology of Reconstituted Safaniya Vacuum Residue Based on Physical and Chemical Separation. Petrophase 2017, June 11 - 15, Le Havre, France (poster presentation).

***Pourmohammadbagher, Mohammad;** Bansal, Hemant; Nikrityuk, Petr; Shaw, John M.; On Diffusion Mechanism Discrimination In Heavy oil + Light Hydrocarbon Pseudo Binary Mixtures. Petrophase 2017, June 11 - 15, 2017, Le Havre, France (poster presentation).

***Chowdhury, Sourav;** Shaw, John M.; Phase Behavior of Asphaltene-Rich Heavy oil + Polystyrene + Toluene Mixtures. Petrophase 2017, June 11 - 15, 2017, Le Havre, France (poster presentation).

Shaw, John; Invited Panel Discussion Organizer and Leader: Research Needs for the Environmentally Conscious Development of Geo-Energy Resources – short term and long term, other contributors included (Pickard Trepess, Michael Chendorain, David Cole, Paul Ashby), Shale and the Environment, Florence Italy, June 11-13, 2017.

Shaw, John; Phase behaviour and transport properties of bitumen and heavy oil + solvent mixtures (invited). Alberta Innovates Energy and Environment Solutions, Solvent Leadership Series Workshop 1: In Situ Solvent Assisted and Solvent-Based Recovery, Calgary Canada, May 26 2017.

Shaw, John; Capsule Research Summaries for NEXEN Steam/Solvent Workshop (invited), Nexen Steam/Solvent Workshop, Calgary Canada, January 25th, 2017.

Ahitan, Sourabh; Liu, Qingchen; Pourmohammadbagher, Amin; Shaw, John M.**;** Bubble Pressure, Enthalpy of Mixing and Excess Volume Measurement and Prediction for n-Alkane + Aromatic and Naphthenic Hydrocarbon Binary Mixtures. 2016 AIChE Annual Meeting, San Francisco, California, 13 -18 November 2016 (oral presentation).

Pourmohammadbagher, Amin; Shaw, John M.; Clays behavior in organic solvents and water – surface contamination and water chemistry, Petrophase 2016, June 19-23, 2016, Elsinore, Denmark (oral presentation).

Sood, Sahil, Shaw, John M., "Impact of Transitions from Liquid to Liquid-Liquid Phase Behavior on the Apparent Viscosity of Model Hydrocarbon + "Solvent" Mixtures", Petrophase 2016, June 19-23, 2016, Elsinore, Denmark (poster presentation).

Liu, Qingchen, **Ahitan, Sourabh**, Satyro, Marco, Shaw, John M., "Bubble Pressure Measurement and Prediction for n-Alkane + Aromatic and Naphthenic Hydrocarbon Binary Mixtures", PPEPPD 2016, Porto, Portugal, 22-26, 2016 (poster presentation).

Dini, Yoann, Satyro, Marco, **Shaw, John M**., "Phase Diagram and Saturated Phase Property Management and Simulation for Peace River Bitumen + Propane Mixtures", PPEPPD 2016, Porto, Portugal, 22-26 May, 2016 (poster presentation).

Shaw, John M., "Asphaltene Structure and Properties - Dissonance Between Measurements and Models", Annual Workshop RERI (Reservoir Engineering Research Institute), Palo Alto, California, USA., 5-6 May, 2016 (oral presentation).

***Jamieson, Marnie V.** and Shaw, John M., "Team midterm in an Introductory Process Design Course", " Pre and Post Course Student Self Assessments of CEAB Graduate Attributes - a Tool for Outcomes Assessment, Student Skill and Course Improvement" and "Online Learning Element Design - Development and Application Experiences", CEEA Conference, Halifax, Canada, 19-22 June 2016.

Shaw, John M., "Joint characterization of asphaltenes and heavy oils using measured and computed infrared and Raman spectra, and enthalpies of solution for molecules and nanoparticles", Pacifichem 2015, Honolulu, Hawaii, 15-20, December 2015 (invited speaker).

*Spillebout, Faustine, Michaelin, Kirk, Begue, Didier, Shaw, John, "Identifying intermolecular interactions in polycyclic aromatic hydrocarbons: DFT calculations and photacoustic spectrospcopy measurements", Pacifichem 2015, Honolulu, Hawaii, 15-20, December 2015 (oral presentation).

*Pourmohammadbagher, Amin, Shaw, John M., "Enthalpy of Solution Difference Between Chemically Separtated Asphaltenes and Physically Separated Asphaltene-Rich Materials in Athabasca Bitumen", AIChE 2015, Salt Lake City, Utah, 8-13 November 2015 (oral presentation).

*Cassiede, Marc, Shaw, J.M., "Two Dimensional Acoustic Mapping of Fluid Transport in Porous Media – Oil Production Technology Development Applications", AIChE 2015, Salt Lake City, Utah, 8-13 November 2015 (oral presentation).

*Ahitan, S., Shaw, J.M., Satyro M., "Systematic miss-prediction of aliphatic + aromatic and naphthenic hydrocarbon phase behavior using common equations of state", 65th Canadian Chemical Engineering Conference (CSChE 2015), Calgary, Alberta, 4-7 October 2015 (oral presentation).

*Cassiede, Marc, Shaw, J.M., "Mutual diffusion measurements for heavy oil + light hydrocarbon mixtures in porous media", 65th Canadian Chemical Engineering Conference (CSChE 2015), Calgary, Alberta, 4-7 October 2015 (oral presentation).

*Jamieson, M.V., Nocente, N., Shaw, J.M., "Evaluation of a blended learning environment on student outcomes in a capstone design project", 65th Canadian Chemical Engineering Conference (CSChE 2015), Calgary, Alberta, 4-7 October 2015 (oral presentation).

*Mortazavi-Manesh, Sepideh, Shaw, J.M., "Rheological properties of heavy oil and bitumen", 65th Canadian Chemical Engineering Conference (CSChE 2015), Calgary, Alberta, 4-7 October 2015 (oral presentation).

Satyro, M., Mortazavi-Manesh, S., Becerra, M., *Shaw, J.M., "Heavy oil viscosity prediction – Impacts of oil characterization and non-Newtonian rheology on prediction quality", 65th Canadian Chemical Engineering Conference (CSChE 2015), Calgary, Alberta, 4-7 October 2015 (oral presentation).

*Stewart, Robert A., Shaw, John M., "Impact of vibration induced motion of micro bubbles on displacement and mixing of fluids in porous media", 65th Canadian Chemical Engineering Conference (CSChE 2015), Calgary, Alberta, 4-7 October 2015 (oral presentation).

*Mortazavi-Manesh, Sepideh, Becerra, Mildred, Satyro, Marco, Shaw, John M., "Heavy Oil and Bitumen Viscosity Prediction – Impacts of Oil Characterization and Non-Newtonian Rheology", 19th Symposium of Thermophysical Properties, Boulder Colorado, 25 June 2015 (oral presentation).

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*Jamieson, Marnie V., Church, Len, Vagi, Frank, Pick, William, Onuczko, Tracy, Nychka, John, Nocente, Norma, Shaw, John M., "The University of Alberta Chemical Engineering Capstone Design Course Goes Flipped", CEEA 2015 (Canadian Engineering Education Association), Hamilton, Ontario, 31 May – 3 June 2015, (6 pages to be published) (oral presentation).

Shaw, John M., "Thermophysical Property Measurement and Prediction for Undistillable Hydrocarbons – getting a handle on the bottom of the oil barrel", Clarkson University, Potsdam, New York, USA, 29 May 2015 (invited speaker).

*Pouralhosseini, Sajjad , Shaw, John M., "On Extending Depletion Flocculation Phase Behavior Models to Partially Soluble and Aggregating Colloids (Asphaltenes)", IACIS 2015 (International Association of Colloid and Interface Scientists), Maiz, Germany, 24-29 May 2015 (oral presentation).

*Pourmohammadbagher, Amin, Shaw, John M., "Enthalpy of Solution of Clays and Modified Clays: Impacts of Sorbed Asphaltene, Trace Hydrocarbons and Water", IACIS 2015 (International Association of Colloid and Interface Scientists), Maiz, Germany, 24-29 May 2015 (poster presentation).

*Stewart, Robert, Shaw, John M., "Impact of Pressure Fluctuations on Phase Behavior and Fluid Transport in Porous Media", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (oral presentation).

*Mortazavi-Manesh, Sepideh, Shaw, John M., "The effect of pressure and diluents on the rheological properties of Maya crude oil", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (oral presentation).

*Ahitan, Sourabh, Shaw, John M., "Systematic misprediction of aromatic + aliphatic & naphthenic + aliphatic hydrocarbon binary phase behavior using cubic Equation of State", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (oral presentation).

*Jamieson, Marnie, Shaw, John M., "The University of Alberta Chemical Engineering Capstone Design Course Goes Flipped!" 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (oral presentation).

*Linden, Nicolas, Shaw, John M., "Rheology of reconstituted crude oil subsamples", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

*Liu, Michelle, Pourmohammadbagher, Amin, Shaw, John M., "Calorimetric Behavior of Chemically Separated Asphaltenes and Model Gold Nano Particles", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

*Sood, Sahil, Shaw, John M., "Rheology of Vapour-Liquid and Liquid-Liquid Mixtures of CO2 + Hydrocarbons", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

*Liu, Qingchen, Shaw, John M., "Identification of Binary Interaction Parameters for Heavy Oil Components", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

*Lin, Li, Shaw, John M., "Humic Acids in Liquid Crystal Domains in Heavy Oils and Bitumen Fractions", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

*Sun, Shuai, Shaw, John M., "Algorithm Development for the Identifications of Representative Molecules in Heavy Oils", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

Kumar, Anupam, *Ollinger, Becerra, Mildred, Shaw, John M., "The Rheological Behavior of Asphaltenes & Surface Modified Gold Nanoparticles in Organic Solvents", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

*Pourmohammadbagher, Amin, Shaw, John M., "Surface Contamination of clays: Asphaltene Adsorption and Hydration", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

*Pourmohammadbagher, Amin, Khaniani, Yeganeh, Shaw, John M., "Organic Ligand Functionalized Nanoparticle Mimics for Asphaltenes", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

*Pouralhosseini, Sajjad, Shaw, John M., "Temperature Independent Depletion Flocculation Driven Liquid-Liquid Phase Behavior: Asphaltene + Toluene + Polystyrene Mixtures", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

*Wang, Kejie, Shaw, John M., "Separation and Composition of Liquid Crystal Domains in Athabasca Bitumen", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

*Stewart, Robert, Wood, Caitlin, Murowchuk, Steven, "Phase order inversion with solvent addition during bitumen production", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

*Cassiede, Marc, Shaw, John M., "An improved acoustic mapping technique study local composition and flow in pours media", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

*Spillebout, Faustine, Michaelian, Kirk M., Shaw, John M., "Identifying intermolecular interactions in asphaltenes: DFT calculations and photoacoustic IR measurements", 12th Petroleum Thermodynamics NSERC Industrial Research Chair Advisory Committee Meeting, Calgary, Alberta, 6 March 2015 (poster presentation).

Shaw, John M., "Thermophysical property measurement and prediction for undistillable hydrocarbons – getting a handle on the bottom of the oil barrel", Chemical Engineering Departmental Seminar, University College London, London, England, 31 October 2014 (invited speaker).

Shaw, John M., "Thermophysical property measurement and prediction for undistillable hydrocarbons – getting a handle on the bottom of the oil barrel", 20th European Conference on Thermophysical Properties (ECTP 2014), Porto, Portugal, 31 August – 04 September 2014 (plenary lecture).

*Spillebout, Faustine, Shaw, John M., "Distinguishing Intermolecular phenomena in Vibrational Spectra: Mystery of the intermolecular interactions occurring in asphaltnes", 27th European

Symposium on Applied Thermodynamics "Experiments meet Theory and Simulation" (ESAT 2014), Eindhoven University of Technology, The Netherlands, 6-9 July 2014 (oral presentation).

*Pouralhosseini, Sajjad, Shaw, John M., "Temperature Independent Depletion Flocculation Driven Liquid-Liquid Phase Behavior: asphaltene + toluene + polystyrene mixtures", 27th European Symposium on Applied Thermodynamics "Experiments meet Theory and Simulation" (ESAT 2014), Eindhoven University of Technology, The Netherlands, 6-9 July 2014 (poster presentation).

*Pourmohammadbagher, Amin, Shaw, John M., "Surface Contamination of Clays: Asphaltene Adsorption and Hydration", An International Colloid and Interface Science Symposium (UK Colloids 2014), London, England, 6-9 July 2014 (poster presentation).

*Pourmohammadbagher, Amin, Khaniani, Yeganeh, Shaw, John M., "Organic Ligand Functionalized Nanoparticle Mimics for Asphaltenes", 10th International Conference on Diffusion in Solids and Liquids DSL-2014, Paris, France, 23-27 June 2014 (poster presentation).

*Pourmohammadbagher, Amin, Khaniani, Yeganeh, Shaw, John M., "Organic Ligand Functionalized Nanoparticle Mimics for Asphaltenes", Fifth Annual Graduate Research Symposium, Faculty of Engineering, University of Alberta, Edmonton, Alberta, 19 June 2014 (poster presentation).

*Stewart, Robert A., Murochuk, Steven, Wood, Caitlin, Shaw, J.M., "Phase Inversion with Solvent Addition During Bitumen Production", 15th International Conference on Petroleum Phase Behavior and Fouling (Petrophase 2014), Galveston, Texas, 8-12 June 2014 (oral presentation).

*Spillebout, Faustine, Michaelin, Kirk H., Shaw, John M., "Identifying intermolecular interactions in asphaltenes: DFT calculations and photoacoustic IR measurements", 15th International Conference on Petroleum Phase Behavior and Fouling (Petrophase 2014), Galveston, Texas, 8-12 June 2014 (poster presentation).

*Cassiede, Marc, Shaw, John M., "An improved acoustic mapping technique to study local composition and flow in porous media", Carbon Management Canada 2014 Annual Conference, Banff, Alberta, 27-29 May 2014 (poster presentation).

*Oladepo, Sulayman A., Shaw, J.M., Michaelian, Kirk H., "Raman and Photoacoustic Infrared Spectra of Fluorene and Its Substituted Analogs", 97th Canadian Chemistry Conference and Exhibition, Vancouver, British Columbia, 1-5 June 2014 (oral presentation).

*Wang, Kejie, Shaw, J.M., "Separation and Composition of Liquid Crystals in Athabasca Bitumen", Oil Sands 2014, University of Alberta, 28-30 April 2014 (poster presentation).

*Shaw, J.M., "Redefining Heavy Oil Characterization: A Dissident's Perspective", University of Michigan, February 18, 2014 and University of Delaware, February 20, 2014, (Invited Speaker).

*Shaw, J.M., "How can we best create a collaborative environment among government, industry and academia? What fundamentals will support a collaborative environment? What barriers presently exist to hinder success? Alberta Chemistry Day, Government/Industry Meeting, Edmonton, Alberta, 30 October 2013, (invited speaker).

*Shaw, J.M., "Asphaltenes" and their solution behavior – a dissident's perspective", Schlumberger DBR Centre, Edmonton, Alberta, 22 October 2013 (invited speaker).

*Mortazavi-Manesh, S., Shaw, J.M., "Thixotropic Rheological Behavior of Maya Crude Oil", Society of Rheology 85th Annual Meeting, Montreal, Quebec, 13-17, October 2013, (oral presentation).

*Khaniani, Y., Shaw, J.M., "Shear Rheology of Functionalized Silica Nanoparticle Dispersions in Organic Solvents", Society of Rheology 85th Annual Meeting, Montreal, Quebec, 13-17, October 2013, (poster presentation)

*Rajaeirad, S., Shaw J.M., "On Implementing an Element Based Heat Capacity for Liquids in Capacity Correlation in Process Simulator Software", AGIS IV Conference, Calgary, Alberta, 24-27, September 2013, (oral presentation).

*Boutros, J., Shaw, J.M., "Developing High Precision Heat Capacity Correlations for Organic Solids, Liquids and Ideal Gases", AGIS IV Conference, Calgary, Alberta, 24-27, September 2013, (poster presentation).

*Shaw, J.M., "Hydrocarbon Thermophysical Properties: Unexpected Frontiers", International Student Energy Summit 2013, Trondheim, Norway, 13-15 June 2013, (invited speaker).

Shaw J.M., "Hydrocarbon Thermophysical Properties: Unexpected Frontiers", Petrophase 2013, Rueil-Malmaison, France, 10-13 June 2013, (plenary lecture).

Khaniani, Yeganeh, Shaw, J.M., "Functionalized Silica Nanoparticles as Structural Models for Asphaltenes", Petrophase 2013, Rueil-Maison, France, June 10-13, 2013 (poster presentation).

Dagostar, Nafiseh, Shaw, J.M., "Improvement of Departure Function Based Predictions for Liquid Phase Heat Capacity of Hydrocarbons", PPEPPD 2013, Iguazu, Argentina, May 26-30, 2013 (poster presentation).

Cassiede, Marc, Shaw, J.M., "Measurement of Local Composition and Phase of Organic Compounds in Porous Inorganic Media Using Multi-Element Acoustic Sensors", PPEPPD 2013, Iguazu, Argentina, May 26-30, 2013 (poster presentation) and Carbon Management Canada Annual Technical Conference (June 3-5, 2013) Calgary (poster presentation).

Amani, Mohammad, J., Gray, Murray R., Shaw, J.M., "Phase Behavior and Properties of Athabasca Bitumen-Toluene-Water Mixtures", PPEPPD 2013, Iguazu, Argentina, May 26-30, 2013 (poster presentation).

Cassiede, Marc, Shaw, J.M., "Measurement of Local Composition of Organic Materials Within Porous Inorganic Media Using Two-Dimensional Acoustic Mapping", Joint European Days on Equilibrium Between Phases (JEEP 2013), Nancy, Lorraine, France, March 19-21, 2013 (oral presentation).

Rajaeirad, Sepideh, Dadgostar, Nafiseh, Loria, Herbert, Satyro, Marco, Shaw, J.M., "On Transfering New Constant Pressure Heat Capacity Computation Methods to Engineering Practise", JEEP 2013, Nancy, Lorraine, France, March 19-21, 2013 (poster presentation).

Qin, Chuan, Shaw, J.M., "Observation of Liquid Crystals in Heat Treated Athabasca Bitumen + Water Mixtures", Oilsands 2012, Edmonton, Alberta, 28-30, 2013 (poster presentation).

Mortazavi-Manesh, Sepideh, Shaw, J.M., "Thixotropic Rheological Properties of Athabasca Bitumen and Heavy Oil", Oilsands 2012, Edmonton, Alberta, 28-30, 2013 (poster presentation).

Shaw, J.M., "Hydrocarbon Thermophysical Properties: Unexpected Frontiers", PPEPPD 2013, Iguazu, Argentina, 26-30 May 2013 (plenary lecture).

Shaw, J, "Hydrocarbon Thermophysical Properties: Unexpected Frontiers", Properties and Phase Equilibria for Product & Process Design (PPEPPD) 2013, Iguazu Falls, Argentina, 26-30 May 2013, (keynote speaker – filled in for absent speaker).

Shaw, J.M., "'Non-Intrusive Telemetry Applications in the Oilsands: From Visible Light and X-ray Video to Acoustic Imaging and Spectroscopy", SPIE Defense Security and Sensing, Baltimore, Maryland, USA, 30 April - 3 May 2013, (keynote speaker).

*Cassiede, Marc, Shaw, J.M., "Measurement of Local Composition of Organic Materials Within Porous Inorganic Media Using Two-Dimensional Acoustic Mapping", Joint European Days on Equilibrium Between Phases (JEEP) 2013, Nancy, France, 19-21 March 2013, (oral presentation).

Shaw, J.M., "An Overview of the Phase Behavior of Heavy Oil + Water, Light Hydrocarbon, Hydrogen Mixtures and Their Impact in Diverse Refining Environments", International Conference on Chemistry of Heavy Petroleum Fractions and Its Impacts on Refining Processes", Beijing, China, 22-26 October 2012, (invited speaker).

*Mortazavi-Manesh, Sepideh, Bagheri, Reza, S., Shaw, J.M., "Unexpected Impact of Thermal History on the Relative Viscosity of Dilute Asphaltene Toluene Mixtures", XVI International Congress on Rheology, 2012, Lisbon, Portugal, 5-10, August 2012, (poster presentation).

*Dadgostar, Nafiseh, J.M. Shaw, "Modified Dadgostar-Shaw Predictive Correlation for Isobaric Heat Capacity of Organic Liquids", 18th Symposium on Thermophysical Properties, Boulder, Colorado, USA. 30 July - 4 August, 2012, (oral presentation).

Amani, Mohammad J., Gray, Murray R., Shaw, J.M, "The Phase Behavior of Athabasca Bitumen Water Mixture at High Temperature and Pressure", 18th Symposium on Thermophysical Properties 2012, Boulder, Colorado, USA., 30 July - 4 August, 2012, (poster presentation).

Long, Bingwen, Chodakowski, Martin, *Shaw, J.M., "Nanostructure in pentane-rich and Athabasca vacuum residue-rich liquids under liquid-liquid equilibrium conditions", Petrophase XIII 2012, St. Petersburg Beach, Florida, USA. 10-15 June 2012 (oral presentation).

*Bagheri, Reza S., Masik, Brady, Arboleda, A., Wen, Q., Michaelian, K.H. Shaw, J.M., "Physical Properties of Liquid Crystals in Athabasca Bitumen Fractions", Petrophase XIII 2012, St. Petersburg Beach, Florida, USA., 10-15, June 2012, (oral presentation).

* Amani, Mohammad J., Gray, Murray R., Shaw, J.M., "Transformations between types of phase behavior in Athabasca bitumen + toluene + water ternary mixtures", Petrophase XIII 2012, St. Petersburg Beach, Florida, USA, 10-15, June 2012, (oral presentation).

J. M. Shaw, "Good Vibrations - From fundamental spectra to hydrocarbon heat capacity and structure, an engineer's perspective", UPPA (April 12, 2012) (invited speaker)

Shaw, J.M., "The phase behavior of Bitumen + water mixtures", UPPA (December 8, 2011) and TOTAL (January 11, 2012) (invited speaker).

Shaw J.M., "Bitumen and Heavy Oil Transport properties", UPPA (November 10, 2011) and TOTAL (December 19, 2011) (invited speaker).

Leonardo, Jesus, Hurtado, Amundarain, Chodakowski, Martin, Long, Bingwen, Shaw, J.M., "Size and Structure of Asphaltene Aggregates in the Bubble Pressure Region", AIChE Annual Meeting, Minneapolis, Minnesota, USA, October 2011, (oral presentation)

Nikooyeh, Kasra, Shaw, J.M., "Phase behavior of asphaltenes + organic diluents", AIChE Annual Meeting, Minneapolis, Minnesota, USA, October 2011 (poster presentation).

Dadgostar, Nafiseh, Shaw, J.M., "A Predictive Correlation for the Constant Pressure Heat Capacity of Pure and Ill-Defined Hydrocarbon Liquids", Thermodynamics 2011, Athens, Greece, 2011 September (poster presentation).

Dion, Moise, Shaw, J.M., "Simulating the rheology of bitumen and heavy oil at low temperatures using a modified Structural Kinetic Model (SKM) approach", 2011 PetroPhase, Imperial College London, London, UK, July 10-14, 2011.

Kasra Nikooyeh, Shaw, J.M., "Phase behavior of asphaltenes + organic diluents", Thermodynamics 2011, Athens, Greece, September 2011 (poster presentation).

*Dion, M., J.M. Shaw, "Simulating the rheology of bitumen and heavy oil at low temperatures using a modified Structural Kinetic Model (SKM) approach", Petrophase; London, UK; 10-14 July 2011.

Essautier, Joelle, Shaw, John, Becerra, Mildred, Levitz, Pierre, Espinat, Didier, Barré, Loïc, "Size distribution in vacuum residue from physical separation or: Physical separation and fraction analyses of vacuum residue without solvent addition", Petrophase; London, UK; 10-14 July 2011.

Yarranton, H.W., Ortiz, D.P. Barrera, D., Barré, L., *Eyssautier, J., McKenna, A.M., Rodgers, R.P., Marshall, Alan G., Podgorski, D.C., Zeng, H., Xu, Z., Natarajan, A., Dechaine, G., Becerra, M., Shaw, J.M., Bohne, C., Yang, Zixin, Oake, J., "On the Size Distribution of Self-Associated Asphaltenes", Petrophase; London, UK; 10-14 July 2011.

*Shaw, J.M., "Research Theme B: Emerging and Enabling Technologies; Carbon Management Canada Annual Conference; Calgary, AB; 18-20 May 2011 (invited)

Shaw, J.M., "Bitumen and Heavy Oil Transport Properties - rheology and diffusion", DBR Technical Series, Schlumberger, Edmonton, AB, April 28, 2011 (invited speaker).

Shaw, J.M., SPE Workshop: Heavy Oil & Bitumen Phase Behavior – thermophysical properties; Complex Reservoir Fluids – New Developments and Multi-Discipline Integration; Amsterdam, The Netherlands, 14 – 16 March 2011 (invited speaker).

Saber, Nima, Shaw, J.M., "Phase Behaviour Simulation for Athabasca Vacuum Residue + n-Alkane Mixtures"; Oilsands 2011, Edmonton, Alberta Canada, 22-24, February 2011, (poster presentation).

Nikooyeh, Kasra, Shaw, John M., "On Specific Partial Molar Volume and Enthalpy of Mixing of Asphaltenes in Organic Liquids and their Solubility Parameters", Oilsands 2011, Edmonton, Alberta Canada, 22-24, February 2011 (poster) AIChE Annual Meeting Salt Lake City, Utah, 7-12 November 2010 (poster).

Bazyleva, Ala, Fulem, Michal, Becerra, Mildred, Zhao, Bei, Shaw, J.M., "Phase behavior of Athabasca bitumen", Oilsands 2011, Edmonton, Alberta Canada, 22-24, February 2011 (poster presentation).

Masik, Brady, McKenna, Amy, Shaw, J.M., "The Composition of Liquid Crystals in Athabasca Bitumen", Oilsands 2011, Edmonton, Alberta Canada, 22-24, February 2011 (poster presentation).

Shaw, J.M., "Phase Equilibria Related to the Production of Heavy Oil- experiment and prediction challenges and successes; Oilsands 2011", Edmonton, Alberta Canada, 22-24, February 2011 (general presentation).

Sadighian, Ardalan, Becerra, Mildred, Bazyleva, Ala, Shaw, J.M., "Forced and Diffusive Mass Transfer between Pentane and Athabasca Bitumen Fractions", Oilsands 2011, Edmonton, Alberta Canada, 22-24, February 2011 (poster presentation).

Shaw, J.M., "New Directions for the Oilsands and Heavy Oil Industry Enabled by Fundamental Research", AICHE Annual Meeting, Salt Lake City, Utah. November 7-12, 2010.

Shaw, J.M., "Bitumen and Heavy Oil Transport Properties (viscosity and diffusivity)", Seminar, Imperial College, London, UK, 01 October 2010 (invited speaker).

Shaw, J.M., "Phase Behavior of Heavy Oil & Tar Mats", EAGE Tar Mats & Heavy Oil Workshop, Manama, Bahrain, 26-29, September, 2010 (invited speaker)

Shaw, J.M., "Phase Equilibria Related to the Production of Heavy Oil – experiment and prediction challenges and successes", Petroleum Institute, Abu Dhabi, 26, September, 2010 (invited speaker).

Shaw, J.M., "Surface & catalyst fouling in bitumen refining processes", Topsoe Catalysis Forum, August 19-20, 2010 (keynote).

Shaw, J.M., "Phase Equilibria Related to the Production of Heavy Oil", ICCT-2010, Tsukuba Science City, Ibaraki, Japan. 1-6, August, 2010 (keynote).

Bazyleva, A., Shaw, J.M., "Phase Behavior of Athabasca Bitumen", ICCT-2010, Tsukuba Science City, Ibaraki, Japan. 1-6, August, 2010.

Lastovka, V., Shaw, J.M., "A Predictive correlation for the ideal gas heat capacity of hydrocarbons", ICCT-2010, Tsukuba Science City, Ibaraki, Japan. 1-6, August, 2010.

Khammar, M., Shaw, J.M., "Phase Behavior of Asphaltenes + Polystyrene + Toluene Mixtures at 293 K", 11th International Conference on Petroleum Phase Behavior and Fouling, Jersey City, New Jersey, USA, June 13-17, 2010.

Dadgostar, N., Shaw, J.M., "Developing a Predictive Correlation for the Heat Capacity of Ill -Defined Liquid Hydrocarbons", 11th International Conference on Petroleum Phase Behavior and Fouling, Jersey City, New Jersey, USA, June 13-17, 2010.

Amundarain, J., Shaw, J.M., "Characterization of Asphaltenes Separated Physically and Chemically Using Small-Angle X-Ray Scattering", 11th International Conference on Petroleum Phase Behavior and Fouling, Jersey City, New Jersey, USA, June 13-17, 2010.

Bazyleva, A., Shaw, J.M., "Phase behaviour of Athabasca bitumen from calorimetric and rheological measurements", 11th International Conference on Petroleum Phase Behavior and Fouling, Jersey City, New Jersey, USA, June 13-17, 2010.

Obiosa-Maife, C., Shaw, J.M., "Prediction of hydrocarbon molecular structure using infrared, Raman, and NMR spectroscopy", 11th International Conference on Petroleum Phase Behavior and Fouling, Jersey City, New Jersey, USA, June 13-17, 2010.

Bagheri, S. Reza, Gray, M.R., McCaffrey, Wm. C., and Shaw, J.M., "Observation of liquid crystals in heavy petroleum fractions", 11th International Conference on Petroleum Phase Behavior and Fouling, Jersey City, New Jersey, USA, June 13-17, 2010.

Khammar, M. and Shaw, J.M., "Impact of Premicellar Association on the use of Speed of Sound for Critical Micelle Concentration Measurement", 12th International Conference on Properties and Phase Equilibria for Product and Process Design (PPEPPD), Suzhou, Jiangsu, China, May 16-21, 2010.

Saber, N. and Shaw, J.M., "On the Phase Behavior of Athabasca Vacuum Residue + n-Decane", 12th International Conference on Properties and Phase Equilibria for Product and Process Design (PPEPPD), Suzhou, Jiangsu, China, May 16-21, 2010.

Shaw, J.M., "Good Vibrations - from fundamental spectra to hydrocarbon heat capacity and structure, an engineer's perspective". MTMS'09, Kanazawa, Ishikawa Japan, 2-5, October, 2009 (Invited)

Hasan, M.A., Fulem, M., and Shaw, J.M., "Nano-Micro Structure of Bitumen and Heavy Oil Using Viscoelastic Properties", 8th World Congress of Chemical Engineering, Montreal, Quebec, 23-27 August, 2009.

Bazyleva, A., Ho, R., Hasan, M.A., Fulem, M., Shaw J.M., "Bitumen Rheological Properties – Reconciliation of "Viscosity" Measurements" 8th World Congress of Chemical Engineering, Montreal, Quebec, 23-27 August, 2009.

Bazyleva, A., Hasan, MD. Fulem, M., Becerra, M., Shaw, J.M., "Bitumen and Heavy Oil Rheological Properties - Reconciliation with Viscosity Measurements", 10th International Conference on Petroleum Phase Behavior and Fouling, Rio de Janiero, Brazil, 14-18 June 2009.

Shaw, J.M., "Rheology and Calorimetry windows on the phase behaviour of asphaltenes". 1st. Workshop on Asphaltenes: Characterization and Properties, Itacuruca Island, Rio de Janerio, Brazil, 11-14 June, 2009 (invited lecture).

Hasan, MD., Fulem, M., Shaw, J.M. "Rheological Study of Athabasca Bitumen and Maya Crude Oil". (Poster). Workshop on Asphaltenes: Characterization and Properties, Itacuruca Island, Rio de Janerio, Brazil, 11-14 June, 2009.

Saber, N., Shaw, J.M., "Challenges Involved in Phase Behaviour Prediction for Mixtures Containing Bitumen and Heavy Oil", 58th Canadian Chemical Engineering Conference, Ottawa, Ontario, 19-22 October 2008.

Shaw, J.M. "Molecular Level Characterization of Heavy Oil – interplay between process and property modeling", French Petroleum Institute, Lyon, France, 15 October 2008 (invited lecture).

Fulem, Michal, Laštovka, Václav, Straka, Martin, Růžička, Květoslav, Shaw, J.M., "Heat Capacities of Tetracene and Pentacene", ECTP, Pau, August 31-September 04, 2008.

Shaw, J.M., "Complex Phase Behaviour in Bitumen Upgrading". Presented at The 9th International Conference on Petroleum Phase Behavior and Fouling, Victoria, British Columbia, 15-19 June 2008 (keynote).

Hasan, MD A., Fulem, M., Shaw, J.M., "Rheological Study of Athabasca Bitumen and Maya Crude Oil", The 9th International Conference on Petroleum Phase Behavior and Fouling, Victoria, British Columbia, 15-19 June 2008 (poster).

Fulem, M., Becerra, M., Shaw, J.M., "Phase Behaviour of Heavy Oils and Bitumen – an Approach Based on Calorimetry and Rheology", 23rd ESAT, Cannes, France, 29 May-01 June 2008 (poster), and as lectures at CHISA 18, Prague, Czech Republic, Aug-24-28, 2008 and the 9th International Conference on Petroleum Phase Behavior and Fouling, Victoria, British Columbia, 15-19 June 2008.

Zhao, B., Zhang, X., Shaw, John M., "The Interplay Between the Physical Properties of Athabasca Bitumen + Diluent Mixtures and Coke Deposition on a Commercial Hydroprocessing Catalyst", 9th International Conference on Petroleum Phase Behavior and Fouling, Victoria, British Columbia, 15-19 June 2008, ECTP, Pau, August 31-September 04, 2008.

Laštovka, V., *Shaw, J.M., "Constant Pressure Heat Capacity Prediction for Organic Materials – Theory and Application", 58h Canadian Chemical Engineering Conference, Ottawa, Ontario, 19-22 October 2008 (keynote address).

Fulem, M., Becerra, M., Shaw, J.M., "Calorimetric study of phase behavior of Maya crude and Athabasca bitumen", 57th Canadian Chemical Engineering Conference (CSChE) Conference in Edmonton, Alberta, 28-31 October 2007.

Tran, K., Maham, Y., Becerra, M, Shaw, J.M., "Phase transitions for asphaltenes separated from native oils using normal alkanes from pentane to decane", 57th Canadian Chemical Engineering Conference (CSChE) Conference in Edmonton, Alberta, 28-31 October 2007.

Tran, K., Maham, Y., Shaw, J.M, "Phase Transitions in Asphaltenes Using Temperature Moldulated Differential Scanning Calorimetery (TMDSC)", 57th Canadian Chemical Engineering Conference (CSChE) Conference in Edmonton, Alberta, 28-31 October 2007.

Zhao, B., Shaw, J.M., "Composition and Size Distribution of Coherent Nanostructures in Athabasca Bitumen and Maya Crude Oil", 57th Canadian Chemical Engineering Conference (CSChE) Conference in Edmonton, Alberta, 28-31 October 2007.

Zhao, B., Shaw, J.M., "The Impact of Asphaltene-Rich Aggregate Size on Coke Deposition on a Commercial Hydroprocessing Catalyst", 57th Canadian Chemical Engineering Conference, Edmonton, AB, Canada, 28-31, October 2007.

Lastovka, V., Fulem, M., Becerra, M., *Shaw, J.M., "A predictive heat capacity correlation for ill-defined organic solids", International Conference, THERMODYNAMICS 2007, IFP-Rueil-Malmaison, France, 26-28 September 2007 (poster).

Bonomi, S., Correra, S., Calemma, V., Shaw, J.M., "VLE of multi component normal and normal/iso paraffin mixtures", ECCE-6: European Congress of Chemical Engineering, Copenhagen, Denmark, 16-20 September 2007.

*Gray, M.R., Shaw, J.M., "Chemical Structure of Vacuum Residue Components: Implications for Hydrotreating and Hydroconversion", ISAHOF-2007. Morelia, Mich., Mexico, June 2007.

Lastovka, V., Sallamie, N., *Shaw, J.M., "A similarity variable for estimating the heat capacity of solid organic compounds", PPEPPD 2007: Eleventh International Conference on Properties and Phase Equilibria, Hersonissos, Crete, Greece, May 2007 (poster).

Lastovka, V., Michaelian, K., Schmidt, K., *Shaw, J.M., "Molecular structure of hydrocarbon resources, a combined experimental and theoretical approach: QM calculations, spectroscopy, low temperature Calorimetry", IFP-Molecular Structure of Heavy Oils and Coal Liquefaction Products, Lyon, France, April 2007.

Shaw, J.M., "Hydrocarbon Thermophysical Properties: An unexpected frontier",
Invited Lectures:
(1) Vanderbilt University, Nashville, TN, November 2006
(2) Oakridge National Laboratory, Chemistry Division, Oakridge, TN, November 2006
(3) Mechanical Engineering Speaker Series, University of Alberta, March 2007
(4) Eni S.p.A., Division of Refining & Marketing, Milan, Italy, April 2007.
(5) Institute of Chemical Technology, Prague, CZ, April 2007

Zhao, B., Chodakowski, M.G., Hasan, M.A., Fulem, M., Lange, F., *Shaw, J.M., "Nano fluidics of bitumen and heavy oil. IFP-Molecular Structure of Heavy Oils and Coal Liquefaction Products", Lyon, France, April 2007.

Maham, Y., Tran, K., Shaw, J.M., "Phase transitions in asphaltenes using Temperature Modulated Differential Scanning Calorimetry (TMDSC)", IFP-Molecular Structure of Heavy Oils and Coal Liquefaction Products, Lyon, France, April 2007.

Shaw, J.M., Research Presentations with corporate sponsors: ConocoPhillips (July 2007); Imperial Oil and Nexen (March 2007).

*Satyro, M., Shaw, J.M., "A Graduate Level Interactive and Modular Petroleum Thermodynamics Course Suitable for Remote Delivery", Presented at Annual IRC Meeting, December 2006.

*Shaw, J.M., "Inclusion of Data/Models in Commercial Simulators" Annual IRC Meeting, Edmonton, Alberta, December 2006.

*Hasan, M.D., Shaw, J.M., Lange, C.F., "Experimental and Theoretical Approach Linking the Nano-Miscro-Macro Structure of Complex Fluids with Their Visco-elastic Behavior", MEGSA Symposium, October 2006.

Maham, Y., Zhang, X., Shaw, J.M., "Specific partial molar volumes at infinite dilution and volumes of mixing for Athabasca bitumen and bitumen vacuum reside + solvent mixtures", CALCON 2006, Boulder Colorado, August 2006.

Laštovka, V., Sallamie, N.,Maham, Y., Shaw, J.M., "A Correlation for C_p for solid hydrocarbons based on elemental composition", CALCON 2006, Boulder Colorado, August 2006.

Shaw, J.M., "Bitumen & Heavy Oil Thermophysical Property Measurement and Prediction: Challenges and Misconceptions", 7th Int. Conf. on Phase Behaviour and Fouling, (Ashville, North Carolina, USA), June 2006.

Chodakowski, Martin G., Zhao, Bei, Shaw, J.M., "Ambiguity in the Interpretation of Small-Angle X-ray Scattering Data", 7th Int. Conf. on Phase Behaviour and Fouling, (Ashville, North Carolina, USA), June 2006.

Maham, Y., Zhang, X., Shaw, J.M., "Specific partial molar volumes at infinite dilution and volumes of mixing for Athabasca bitumen and bitumen vacuum residue + solvent mixtures", 7th Int. Conf. on Phase Behaviour and Fouling, (Ashville, North Carolina, USA), June 2006 (poster).

Schmidt, K.J., V. Lastovka, Michaelian, K., Shaw, J.M., "Infrared and RAMAN Spectra of Asphaltenes and Model Compounds", 89th Canadian Chemistry Conference, Halifax Nova Scotia (May 2006).

Schmidt, K.J., Michaelian, K., Shaw, J.M., "Low-Temperature Rotating Sample accessory for FT Raman Spectroscopy", 89th Canadian Chemistry Conference, Halifax Nova Scotia, May 2006, (poster).

Van Waeyenberghe, Annemi, Shaw, J.M., "Estimation of Thermophysical Properties of Athabasca Vacuum Residue using a Group Contribution Based Equation of State", Oilsands 2006, Edmonton, Alberta, February 2006, (poster).

Zhao, Bei, Chodakowski, Martin, Shaw, J.M., "The Impact of Asphaltene Aggregate Size on Coke Deposition on Commercial Hydrotreating Catalysts", Oilsands 2006, Edmonton Alberta, February 2006.

Lastovka, Vaclav, Tran, Khanh, Sallamie, Nasser, Maham, Yadollah, Shaw, John M., "Low Temperature Phase Behaviour and Phase Transitions in Heavy Oils, Bitumen and Asphaltenes", invited lecture, Mexican Petroleum Institute, May 2006 and presented at Oilsands 2006 Edmonton Alberta (February 2006).

Shaw, J.M., "Molecular Simulation - the key to understanding thermophysical properties of ill-defined hydrocarbons from oils to asphaltenes", MTMS, Tokyo Japan, May 2006, (invited keynote address).

Zou, Xiangyang, Zhang, Xiaohui, Shaw, J.M., "The Phase Behavior of Athabasca Vacuum Bottoms + n-Alkane Mixtures", ITOHOS Conference, Calgary Alberta, November 2005.

Shaw, J. M. NSERC Industrial Research Chair in Petroleum Thermodynamics – Research Overview, invited speaker, Alberta Ingenuity Centre for In Situ Energy (U of Calgary), August 25th, 2005.

Sallamie, N., Shaw, J.M., "Heat Capacity: A Tool for Exploring the Mean Molar Mass and Structure of Poorly Defined Petroleum Fractions", The 60th Calorimetry Conference (CalCon), Gaithersburg, MD, June 2005, and at the University of Tennessee, Knoxville, TN, July 2005.

Sallamie, N., Shaw, J.M. "Low Temperature Capacity Measurement and Prediction as a Probe for Molecular Structure and Phase Transitions in Resids and Asphaltenes", 6th International Conference on Petroleum Phase Behavior and Fouling, Amsterdam, July 2005 (poster).

Zou, X.Y., Zhang, X.H., Shaw, J.M., "The phase behavior of Athabasca Vacuum Bottoms (ABVB) + n-alkane mixtures", The 6th International Conference on Petroleum Phase Behaviour and Fouling, Amsterdam, The Netherlands, June 19-23, 2005 (poster).

Chodakowski, M., Shaw, J.M. "The behavior of Athabasca and Maya Asphaltenes in Native Oils and Solvent Mixtures", American Photon Source User Meeting (Agronne, USA), May 5th, 2005, (poster)

Sallamie, N., Shaw, J.M., "Heat Capacities Prediction for Precondensed Aromatic Compounds"

Canadian Chemistry Society Conference, Saskatoon, May 2005, (oral presentation).

Shaw, J.M., "Phase Equilibria and Transport Property Measurements for Bitumen + Water + Diluent Mixtures Using X-ray Transmission Tomography", Annual General Meeting of the Canadian Crude Quality Technical Association, 21 April 2005 (invited speaker).

Shaw, J. M. "Asphaltene Behavior in Heavy Oils: Experimental Measurement Methods and Results", Invited Speaker (Lunch Time Series), 30 March 30th 2005 (Nexen, Calgary).

Shaw, J. M. "Asphaltene Behavior in Heavy Oils: Experimental Measurement Methods and Results", (Lunch Time Series), 30 March 2005 (Nexen, Calgary).

Sallamie, N., Shaw, J.M., "Heat Capacity Prediction for Solid Organic Materials - An Approach Delimiting Possible Average Molecular Structures for Heavy Oils and Asphaltenes" 54th Canadian Chemical Engineering Conference, Calgary, Alberta, Canada, October 2004 (oral presentation).

Tran, K., Maham, Y., Shaw, J.M. "Structural studies of heavy oils and asphaltenes by calorimetry", 54th Canadian Chemical Engineering Conference, Calgary, Alberta, Canada, October 2004 (oral presentation).

Chodakowski, M., Zhang, X.H., Shaw, J.M., "Demystifying the Behavior of Asphaltenic Fluids Using SAXS", CLS 7th Annual Users' Meeting and Workshops, Saskatoon, Saskatchewan, Canada, November 17-21, 2004 (poster).

Maham, Y., Chodakowski, M., Zhang, X.H., Shaw, J.M., "Asphaltene Phase Behavior: Prediction at a Crossroads", Maham, Y, Chodakowski, M. Zhang, X., *Shaw, J.M., "Asphaltene Phase Behavior, prediction at a crossroads?", The presentation was delivered at:

(1) 54th Canadian Chemical Engineering Conference, Calgary, Alberta, Canada, October 4 - 7, 2004.
(2) Schlumberger, April 2004 (invited),
(3) University of Alberta Oilsands Symposium, May 2004,
(4) PPEPPD Conference, Snow Bird, Utah, May 2004 (one of only 12 presentations, the balance of the more than 200 contributions were posters).

Zhang, X, Chodakowski, M., *Shaw, J.M., "Dynamic interfacial zone and local phase concentration measurements in emulsions, dispersions and slurries", The presentation was delivered at:

(1) CONRAD Bitumen processing working group meeting, December 2003.
(2) University of Alberta Oilsands Symposium, May 2004.
(3) 5th International Petroleum Phase Behaviour Conference, Banff, AB, June 2004.

Zhang, X., Shaw, J.M. "The Impact of Multiphase Behaviour on Coke Deposition in Hydroprocessing of Resids", PPEPPD Conference, Snow Bird, Utah, May 2004 (poster).

Chodakowski, M. G., Shaw, J.M., "High-Temperature High-Pressure SAXS Measurements in Asphaltene Containing Hydrocarbon Fluids", The 4th International Conference on Petroleum Phase Behaviour and Fouling: Trondheim, Norway, June 23 - 26, 2003 (presentation). An update will be presented at the Petroleomics Symposium, ASTATPHYS-MEX-2003, Puerto Vallarta, Jalisco, Mexico, 25-29 August 2003.

Siu, I., Mahmoodaghdam, E., Rahmani, S., Maham, Y., Shaw, J. M., "Enthalpies of Phase Transitions in Asphaltene Containing Hydrocarbon Fluids", The 4th International Conference on Petroleum Phase Behaviour and Fouling: Trondheim Norway, 23-26 June 2003 (presentation).

Zou, X-Y, Shaw, J.M., "Phase Diagrams for the pentane + Athabasca Bitumen Vacuum Bottoms System", The 4th International Conference on Petroleum Phase Behaviour and Fouling: Trondheim Norway, 23-26 June 2003 (presentation).

Shaw, J. M., "The impact of emerging research techniques on exploitation and refining technology development" 1st National Congress of the Mexican Academy of Engineering, San Luis Potosi, 15 May 2003. Invited Plenary Lecture.

Chodakowski, M. G., Shaw, J.M., "Interpretation of SAXS Measurements from Asphaltene + Hydrocarbon Systems obtained at APS", SAXS Data Interpretation Workshop, University of Alberta, February 2003.

Shaw, J. M., Invited Lecturer, NEXEN, Calgary, October 2002, on de-asphalting process fundamentals.

Shaw, J. M., Invited Lecturer, Syncrude Research Centre, Edmonton, May 2002 on coking principally.

Shaw, J. M., Invited Speaker, Alberta Chamber of Mines meeting, Edmonton, April 2002.

Zou, X-Y, Shaw, J.M., "The Phase Behavior of Athabasca Bitumen Vacuum Bottoms + Alkane Solvent Systems", Proceedings of the Heavy Oil Deposition Conference, Puerto Vallarta, November 2002.

Shaw, J.M., "Toward Common Generalized Phase Diagrams for Asphaltene Containing Hydrocarbon Fluids II – implications for the correlation and prediction of condensed phase deposition", Proceedings of the Heavy Oil Deposition Conference, Puerto Vallarta, November 2002.

Shaw, J.M., "Toward Common Generalized Phase Diagrams for Asphaltenes Containing Hydrocarbon Fluids", ACS Conf., Boston USA, August 2002, and CSChE Conf., Vancouver, October 2002.

Shaw, J. M., Invited Lecturer, Imperial Oil Research Centre, Calgary, December 2001 on bitumen separation. Invited Lecturer, The University of Saskatchewan, Saskatoon, October 2001 concerning phase diagrams.

Shaw, Invited Panelist, "The Energy Odyssey", Canadian International Petroleum Conf., Calgary, AB, June 12-14 2001. In Connection with the establishment of the Chair numerous presentations were delivered at corporate research centers.

Minicucci, D., Shaw, J.M., "The Impact of LLV phase Behavior on Coke Formation from Model Coke Precursors", 2nd International Conference on Petroleum and Gas Phase Behavior and Fouling to be held in Copenhagen, Denmark 27-31 August 2000.

Shaw, J.M., "Phase Diagram Construction for Reservoir Fluids", INSTITUTO MEXICANA PETROLEO, MEXICO CITY, MAY 26TH, 2000 (invited lecture).

Shaw, J.M., "X-ray View Cell Technology Development", INSTITUTO MEXICANA PETROLEO, MEXICO CITY, MAY 25TH, 2000 (invited lecture + write-up in local press - Gaceta, June 5th, 2000).

Shaw, J.M., Behar, E., "Prediction of SLLV phase behavior in complex asymmetric hydrocarbon fluids", Insitiut Francais du Petrole (Rueil-Malmaison May 1999, and Solaise June 1999), Alberta Research Council, Edmonton, Canada (Sept 30, 1999), University of Waterloo, Canada (May 18, 2000) (all four were invited lectures).

Cai, H.-Y., Chung, K. H., Shaw , J. M. "Hydrogen solubility measurements in heavy oil and bitumen cuts", 49th CSChE Conference, Saskatoon, Canada, October 1999.

Cai, H.-Y., Chung, K. H., Shaw, J. M., "The impact of solid additives on the apparent solubility of hydrogen in petroleum fluids and model hydrocarbons", 49th CSChE Conference, Saskatoon, Canada, October 1999.

Whalley, A., Oshinowo, T., Shaw, J.M., "The Separation of Secondary Dispersions in Packed Bed Coalescers", 48th CSChE Conference, London, Canada, October 1998 and in preliminary form at the ESTAC technical review meeting November 1997, Mississauga, Ontario.

Abedi, S.J., Seyfaie, S., Cai, H. Shaw, J.M., "A New Apparatus for Observing the Phase Behavior of Opaque Organic Fluids", 47th CSChE Conference, Edmonton, Alberta, October 1997.

Shaw, J.M., "Phase Diagrams for Fluids Containing Asphaltenes", CONRAD, Calgary, August 1997.

Shahrokhi, H., Shaw, J.M., "Fine Drop Recovery in Batch Gas-Agitated Liquid-Liquid Dispersions", CCPM at the University of Toronto, May 23, 1997 (invited speaker).

Abedi, S. J., Seyfaie, S., Shaw, J. M., "Unusual Retrograde Condensation and Asphaltene Precipitation in a Model Heavy Oil System", AIChE National Meeting, Houston, March 1997.

Abedi, J., Cartlidge, C., Seyfaie, S., Minicucci, D., Shaw, J.M., "Modeling the Phase Behavior of Hydrocarbon Mixtures at High Temperatures and Pressures", CANMET Annual Bitumen

Chemistry Consortium Working Group Meeting & Enirecerche, Milan, Italy, 28 February 1997 (invited speaker).

Shahrokhi, H., Shaw, J. M., "Fine Drop Recovery in Batch Gas-Agitated Liquid-Liquid Dispersions - II", American Physical Society DFD Meeting '96, 25 November 1996.

Shaw, J. M., "Prediction of Phase Behaviour of Bitumen Resid Mixtures", CANMET-WRC, Edmonton, April 1, 1996. With updates at CANMET-WRC and Syncrude Ltd., 7 August 1996.

Shaw, J. M., "A Microscopic View of Oil Slick Break-Up and Emulsion Formation in Breaking Waves", Department of Oceanography and Centre for Earth and Ocean Research, University of Victoria, March 29, 1996 (Invited lecturer) and American Physical Society DFD Meeting '96, 25 November 1996.

Shaw, J. M., "Phase Separation: a route to coke formation in processing complex hydrocarbons", CONRAD workshop on Bitumen Upgrading Chemistry, June 1995 (keynote speaker).

Cartlidge, C.R., Dukhedin-Lalla, L., Rahimi, P., Shaw, J.M., "Preliminary Phase Diagrams for Heavy Oil Mixtures", AIChE National Meeting: Symposium on Thermodynamics of Heavy Oils and Asphaltenes, Houston, March 1995.

Shaw, J.M., Shahrokhi, H., "The Fate of Fine Drops in Batch Gas-Agitated Liquid - Liquid Dispersions", CCPM, Toronto, February 1994; 11th Canadian Symposium Fluid Mechanics, Edmonton, June 1994; Fluid Mechanics Seminar Series (Mechanical Engineering U of T) November 9, 1994 **(**invited speaker**).**

Shaw, J.M., "Complex Phase Equilibria in Hydrocarbon Systems", ERL-CANMET, November 13 (1992) **(**invited speaker**)**; AOSTRA Technical Review Meeting, Calgary, March 1993; Syncrude Ltd., Edmonton, Alberta, March 1993 **(**invited speaker); AMOCO Research, Chicago, U.S.A., November 1993 **(**invited speaker**)**.

Shaw, J.M., Dukhedin-Lalla, L., "Complex Phase Equilibria in Hydrocarbon Systems", 43rd CSChE Conference, Ottawa, October 1993.

Shaw, J.M., "Gas-Agitated Liquid-Liquid Dispersions", University of Calgary, June 1993 **(**invited speaker)**.**

Shaw, J.M., Shahrokhi, H., "The Origins for Fine Drops in Batch Gas-Agitated Liquid-Liquid Dispersions", CCPM, May 1993.

Shaw, J.M., de Loos, Th.W., de Swaan, Arons, J., "Preliminary Report on the Prediction of Unusual Retrograde Condensation in Model Reservoir Fluids", Gas Producers Research Institute Meeting, Los Angeles, March 1992.

Shaw, J.M., Lo, J., "Representation of Four-Component Phase Diagrams", Technical University of Delft, 29 April 1992.

Shaw, J.M., Dukhedin-Lalla, L., "A Novel X-ray Based Visualization Technique for Observing Phase Equilibria in Opaque Organic Fluids", TUD, May 1992.

Shaw, J.M., De Loos, Th.W., de Swaan, Arons J., "On Unusual Retrograde Condensation in Model Reservoir Fluids", 42nd Canadian Chemical Engineering Conference, Toronto, October (1992).

Shaw, J.M., Rahimi, P., "Liquid-Liquid Equilibria in Coal Oil Co-Processing", 2nd Joint USA-DOE/CAN-DEMR Technical Workshop on Coprocessing, Atlanta, U.S.A., June 1991 **(**invited speaker**).**

Shaw, J.M., Dukhedin-Lalla, L., Rahimi, P., "Mechanisms for Coal Particle Disintegration in Model Coprocessing Systems", A.I.Ch.E. Conference, Pittsburgh, PA, 18-21 August 1991.

Shaw, J.M., "The Role of Liquid-Liquid Equilibria in Hydrocarbon Processing", Technical University of Delft, September 1991 **(**invited speaker**).**

Shaw, J.M., Dukhedin-Lalla, L., Seyfaie, S., "Modelling Complex Phase Equilibria in Heavy Oil and Bitumen Systems", AOSTRA Technical Review Conference, Banff, October 1991.

Shaw, J.M., Seyfaie, S., "Prediction of the Phase Behaviour of Model Coal Derived Liquids and Heavy Oils", 41st C.S.Ch.E. Conference, Vancouver, B.C., October 1991.

Shaw, J. M., "Hydrodynamics of Gas Agitated Liquid-Liquid Systems", Centre for Chemical Process Metallurgy, Toronto (May 1990) and Falconbridge Ltd., Falconbridge (October 1990).

Hatzikiriakos, S., Gaikwad, R.P., Shaw, J.M., "Hydrodynamics of Gas Agitated Liquid-Liquid Dispersions", 39th C.S.Ch.E. Conference, Hamilton, October 1989.

Hatzikiriakos, S., Gaikwad, R.P., Shaw, J.M., "Characterization of Gas-Liquid-Liquid Tubular Reactors", AICHE National Meeting, New Orleans, March 1988.

Jacas, D.D., Shaw, J.M., "The Role of Commercial Steady State Simulation Software in Undergraduate Chemical Engineering Education", 39th C.S.Ch.E. Conference, Hamilton, October 1989.

Shaw, J. M., "Phase Splitting of Complex Hydrocarbon Mixtures", Shell Research, Oakville, October 1988.

Shaw, J.M., "Synergism in Heavy Oil Upgrading and Co-Processing", CANMET, Ottawa, December 1987.

Shaw, J.M. and Peters, E., "A General Model for Direct Coal Liquefaction Reactions", 87th Annual CIM Conference, Vancouver, British Columbia, April 1985.

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Contract Reports/Other Publications:

Shaw, J.M., Research Summaries and presentations for Annual IRC meeting, March 2015.

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