

Recent refereed journal publications

- Briens, L and Ellis, N. (2005) "Hydrodynamics of Three-Phase Fluidized Bed Systems Examined by Fractal, Chaos and Wavelet Analysis Methods", Accepted for publication in Chemical Engineering Science.
- Ellis, N., Briens, L. A., Grace, J. R., Bi, X. T., and Lim, C. J. (2003), "Characterization of Dynamic Behaviour in Gas-Solid Turbulent Fluidized bed Using Chaos and Wavelet Analyses", Chemical Engineering Journal, 96, 105 – 116.
- Wu, B., Cheng, Y., Briens, L. and Zhu, J.X. (2005) "Analysis of the Gas-Solid Suspension Flow Behavior in a High-Density Downer", Circulating Fluidized Beds, Hangzhou, China.
- Wu, B., Briens, L and Zhu, J. (2005) "Multi-scale flow behavior in gas-solids two-phase flow systems" Submitted for publication in Chemical Engineering Journal.
- Wu, B., Zhu, J., Briens, L. and Zhang, H. (2005) "Flow dynamics in a four-inch downer using solids concentration measurements" Submitted to Powder Technology.
- Wu, B., Zhu, J and Briens, L. (2005) "A comparison of flow dynamics and flow structure in a riser and a downer", Submitted to Chemical Engineering Science
- Siva Ariyapadi, Franco Berruti, Cedric Briens, Brian Knapper, Robert Skwarok, Edward Chan, "Stability of horizontal gas-liquid sprays in open air and in a gas-solid fluidized bed", Accepted for publication in Powder Technology (May 2005).
- Carole Baddour, Cedric Briens, 2005, "Carbon Nanotube Synthesis: A Review", IJCRE, **3**, R3.
- F. Portoghese, F. Berruti, C. Briens, 2005, "Use of triboelectric probes for on-line measurement of liquid concentration in wet gas-solid fluidized beds", Chemical Engineering Science, 60, 6043-6048.
- S. Natarajan, C. Zhang, C. Briens, 2005, "Numerical simulation and experimental verification of gas flow through packed beds" , Powder Technology, **152**, 31-40.
- J. McMillan, D. Zhou, S. Ariyapadi, C. Briens, F. Berruti, E. Chan, 2005, "Characterization of the Contact Between Liquid Spray Droplets and Particles in a Fluidized Bed", Ind. Eng. Chem. Res., **44**, 4931-4939.
- Craig Hulet, Cedric Briens, Franco Berruti and Edward W. Chan, 2005, "A Review of Short Residence Time Cracking Processes", IJCRE, **3**, R1.
- Siva Ariyapadi, Franco Berruti, Cedric Briens, Brian Knapper, Robert Skwarok, Edward Chan, "Stability of horizontal gas-liquid sprays in open air and in a gas-solid fluidized bed", accepted by Powder Technology, May 2005.



- S. Ariyapadi, J. McMillan, D. Zhou, F. Berruti, C. Briens, and E. Chan, 2005, "Modeling the Mixing of a Gas-Liquid Spray Jet Injected in a Gas-Solid Fluidized Bed: The Effect of the Draft Tube", *Chem. Eng. Sci.*, **60**, 5738-5750.
- S. McDougall, M. Saberian, C. Briens, F. Berruti, E. Chan, 2005, "Effect of injected liquid properties on the agglomerating characteristics of a wet gas-solid fluidized bed", *Powder Technology*, **149**, 61-67.
- S. McDougall, M. Saberian, C. Briens, F. Berruti, E. Chan, 2005, "Using dynamic pressure signals to assess the effects of liquid injection on fluidized bed properties", *Chemical Engineering and Processing*, **44**, 701-708.
- Steven L McDougall, Mohammad Saberian, Cedric Briens, Franco Berruti, Edward W Chan, 2004, "Characterization of Fluidization Quality in Fluidized Beds of Wet Particles", *International Journal of Chemical Reactor Engineering*, **2**: A26.
- Siva Ariyapadi, Franco Berruti, Cedric Briens, Jennifer McMillan, David Zhou, 2004, "Horizontal Penetration of Gas-Liquid Spray Jets in Gas-Solid Fluidized Beds", *International Journal of Chemical Reactor Engineering*, **2**: A22.
- S. Natarajan, C. Zhang, C. Briens, 2004, "A Parametric Study of the Oxygen Elimination Process in a Packed Bed", *International Journal of Chemical Reactor Engineering*, **2**: A17.
- P. House, M. Saberian, C. Briens, F. Berruti, E. Chan, 2004, "Primary mixing of a liquid sprayed into a fluidized bed", *Industrial and Engineering Chemistry Research* **43**, 5663-5669.
- David Zhou, Mohammad Saberian, Cedric Briens, Franco Berruti, Edward Chan, Steve McDougall. "Enhancement of the distribution of a liquid sprayed into a fluidized bed", *International Journal of Chemical Reactor Engineering*, **2**: S2.
- Craig Hulet, Cedric Briens, Franco Berruti, Edward W Chan, Siva Ariyapadi, 2003, "Entrainment and Stability of a Horizontal Gas-Liquid Jet in a Fluidized Bed", *International Journal of Chemical Reactor Engineering*, **1**: A60.
- Siva Ariyapadi, David Holdsworth, Chris Norley, Franco Berruti and Cedric Briens, 2003, "State-of-the art X-ray Imaging Technique to Study the Dispersion of Gas-Liquid Jets Injected into Fluidized Beds", *International Journal of Chemical Reactor Engineering*, **1**: A56.
- Lauren Briens, David Nevicato, Cedric Briens, Jean-René Bernard, 2003, "Detection and Modeling of the Core-Annulus Transition in Industrial and Pilot Plant Risers", *International Journal of Chemical Reactor Engineering*, **1**: A49.
- Cedric Briens, Steve McDougall and Edward Chan, 2003, "On-line detection of bed fluidity in a fluidized bed coker", *Powder Technology*, **138**, 160-168.





- Ahad Emami and Cedric Briens, 2003, "Defluidized Zones in the Sparger Area of a Slurry Bubble Column", Canadian Journal of Chemical Engineering, **81**, 451-455.
- Siva Ariyapadi, Franco Berruti, Cedric Briens, Peter Griffith and Craig Hulet, 2003, "Modeling the Injection of Gas-Liquid Jets into Fluidized Beds of Fine Particles", Canadian Journal of Chemical Engineering, **81**, 891-899.
- K. Leclère, C. Briens, T. Gauthier, J. Bayle, P. Guigon and M. Bergougnou, 2004, "Experimental measurement of droplet vaporization kinetics in a fluidized bed" Chemical Engineering and Processing, **43**, 693-699.
- S. Barghi, C. Briens and M.A. Bergougnou, 2003, "Mixing and segregation of binary mixture of particles in liquid-solid fluidized beds", Powder Technology, **131**, 223-233.
- S. Barghi, C. Briens and M.A. Bergougnou, 2003, "Measurement of solids circulation patterns in liquid-solid and gas-liquid-solid fluidized beds", Can. J. Chem. Eng., **81**, 124-128.
- P. Da Silva, C. Briens and A. Bernis, 2003, "Development of a new rapid method to measure erosion rates in laboratory and pilot plant cyclones" Powder Technology, **131**, 111-119.

Papers in Refereed Proceedings

- Jennifer McMillan, David Zhou, Mohammad Saberian, Cedric Briens, Franco Berruti, "Mixing Between Injected Liquid Feed and Circulating Solids in a Downer Mixing Chamber", CFB 8, January 2005.
- Wu, B., Cheng, Y., Briens, L. and Zhu, J.X. (2005) "Analysis of the Gas-Solid Suspension Flow Behavior in a High-Density Downer", CFB8, January 2005.F. Portoghese, F. Berruti, C. Briens, "Use of triboelectric probes for on-line measurement of liquid concentration in wet gas-solid fluidized beds", accepted by GLS'7, Dec. 2004
- Briens, L and Ellis, N. (2005) "Hydrodynamics of Three-Phase Fluidized Bed Systems Examined by Fractal, Chaos and Wavelet Analysis Methods", accepted by GLS'7, Dec. 2004
- Siva Ariyapadi, Franco Berruti, Cedric Briens, Peter Griffith and Craig Hulet, "Modeling the injection of Gas-Liquid Jets into Fluidized Beds of Fine Particles", GLS'6, Vancouver, 2003.
- Siva Ariyapadi, David Holdsworth, Chris Norley, Franco Berruti, Cedric Briens and Edward Chan, "State-of-the art X-ray Imaging Technique to Study the Dispersion of Gas-Liquid Jets Injected into Fluidized Beds", CRE IX, Quebec City, 2003.





- D. Zhou, M. Saberian, C. Briens, F. Berruti, E. Chan, S. McDougall, "Enhancement of the Distribution of a Liquid Sprayed into a Fluidized Bed", CRE IX, Quebec City, 2003.
- P. House, M. Saberian, C. Briens, F. Berruti, E. Chan, "Measurement of the primary mixing of a liquid sprayed into a fluidized bed", CRE IX, Quebec City, 2003.
- S. McDougall, M. Saberian, C. Briens, F. Berruti, "Techniques to evaluate fluidization quality in fluidized beds of wet particles", CRE IX, Quebec City, 2003.
- V. Felli, F. Berruti, C. Briens, E. Chan, "Injection of a liquid spray into a gas-solid fluidized bed: measurement of solids entrainment into the spray", CRE IX, Quebec City, 2003.
- Craig Hulet, Cedric Briens, Franco Berruti, Edward Chan, "Jet stability, entrainment, and mixing using gas and liquid jets in a fluidized bed", CRE IX, Quebec City, 2003.
- Briens, L., Nevicato, D., Briens, C. and Bernard, J.-R. (2004) "Detection and modeling of the core-annulus transition in industrial and pilot plant risers" CRE IX, Quebec City, 2003.

Papers in other Proceedings – Conference Presentations

- Siva Ariyapadi, Franco Berruti, Cedric Briens, "A State-Of-The-Art Review Of Horizontal Gas-Liquid Jets Injected Into Fluidized Beds", Chemical Reaction Engineering X: "Innovations in Chemical Reactor Engineering", Zacatecas, Mexico, August 28 to September 2, 2005.
- Matt Dawe, Cedric Briens, Franco Berruti, Ed Chan, "Study of Gas-Liquid Jet Boundaries in Fluidized Beds", Chemical Reaction Engineering X: "Innovations in Chemical Reactor Engineering", Zacatecas, Mexico, August 28 to September 2, 2005.
- Peter House, Cedric Briens, Franco Berruti, Ed Chan, "Modeling the Thermal Cracking of Bitumen in Bitumen-Coke Particles Agglomerates", Chemical Reaction Engineering X: "Innovations in Chemical Reactor Engineering", Zacatecas, Mexico, August 28 to September 2, 2005.
- Craig Hulet, Cedric Briens, Franco Berruti, Edward Chan, David Zhou, "Optimization of a Fluidized Bed Vertical Pneumatic Transport Line", Chemical Reaction Engineering X: "Innovations in Chemical Reactor Engineering", Zacatecas, Mexico, August 28 to September 2, 2005.
- Sarah Weber, Cedric Briens, Franco Berruti, "Agglomerate Stability in a Fluidized Bed of Glass Beads", "Particulate processes in the pharmaceutical industry", Montreal, June 2005.





Peter House, Cedric Briens, Franco Berruti, "Nucleation Phenomena in Gas-Liquid Jets Immersed in Fluidized Beds", "Particulate processes in the pharmaceutical industry", Montreal, June 2005.

Katherine Albion, Lauren Briens, Franco Berruti, Cedric Briens, "Detection of the Attrition of Pharmaceutical Tablets in Pneumatic Transport", "Particulate processes in the pharmaceutical industry", Montreal, June 2005.

Katherine Albion, Lauren Briens, Franco Berruti, Cedric Briens, "Flow Regime Determination in Horizontal Pneumatic Transport of Fine Powders using Non-Intrusive Acoustic Probes", "Particulate processes in the pharmaceutical industry", Montreal, June 2005.

Daniher, D. and Briens, L. (2005) "End-point detection in pharmaceutical fluidized-bed drying using acoustic signal analysis" "Particulate processes in the pharmaceutical industry", Montreal, June 2005.

Daniher, D., Briens, L. and Tallevi, A. (2005) "End-point detection in high-shear granulation using sound and vibration signal analysis" "Particulate processes in the pharmaceutical industry", Montreal, June 2005.

Book, G., Brennan, W., Jacobson, M., Briens, C. and Briens, L. (2005) "Development of a Triboelectric Procedure for the Measurement of Mixing and Drying Rate in a Vibrated Fluidized Bed" "Particulate processes in the pharmaceutical industry", Montreal, June 2005.

Briens, L., Smith, R. and Briens, C. (2005) "Monitoring of a Rotary Dryer Using Acoustic Emissions" "Particulate processes in the pharmaceutical industry", Montreal, June 2005. Federica Portoghese, Franco Berruti, Cedric Briens, "Continuous on-line measurement of solid moisture content during fluidized bed drying by means of triboelectric probes", "Particulate processes in the pharmaceutical industry", Montreal, June 2005.

Jennifer McMillan, David Zhou, Mohammad Saberian, Cedric Briens, Franco Berruti, "Enhancement of Liquid-Solids Contact in a Downer Mixing Chamber: Effect of Liquid Spray Nozzle Orientation and Solids Jet Geometry", 7th World Congress of Chemical Engineering, Glasgow, July 10-14, 2005.

Peter House, Mohammad Saberian, Cedric Briens, Franco Berruti, Edward Chan, "Injection of a liquid spray into a fluidized bed: methods for improving the initial liquid dispersion", CHISA 2004, 16th International Congress of Chemical and Process Engineering, Prague, Aug. 22-26, 2004.

Siva Ariyapadi, Franco Berruti, Jennifer McMillan, David Zhou, Cedric Briens, "Penetration depth of a gas-liquid spray jet in a gas-solid fluidized bed", CHISA 2004, 16th International Congress of Chemical and Process Engineering, Prague, Aug. 22-26, 2004.





- Mohammad Saberian, Cedric Briens, Franco Berruti, Steve McDougall, Sarah Weber, Edward Chan, "Effect of liquid properties on agglomeration in fluidized beds", CHISA 2004, 16th International Congress of Chemical and Process Engineering, Prague, Aug. 22-26, 2004.
- Siva Ariyapadi, Franco Berruti, Jennifer McMillan, David Zhou, Cedric Briens, "Penetration depth of a gas-liquid spray jet in a gas-solid fluidized bed", The 11th International Conference on Fluidization: Present and Future for Fluidization Engineering, Ischia (Bay of Naples), Italy, May 9-13, 2004.
- M. Saberian, Steve McDougall, Cedric Briens, Franco Berruti, Edward Chan, "Effect of liquid properties on agglomeration in fluidized beds", The 11th International Conference on Fluidization: Present and Future for Fluidization Engineering, Ischia (Bay of Naples), Italy, May 9-13, 2004.
- M. Saberian, Steve McDougall, Cedric Briens, Franco Berruti, Edward Chan, "Using dynamic pressure signals to assess the effects of liquid injection on fluidized bed properties", The 11th International Conference on Fluidization: Present and Future for Fluidization Engineering, Ischia (Bay of Naples), Italy, May 9-13, 2004.
- C. Briens, F. Berruti, P. House, J. McMillan, M. Saberian, D. Zhou, M. Dawe, "Enhancing Contact between Injected Liquids and Gas-Solid Fluidized Beds", The 11th International Conference on Fluidization: Present and Future for Fluidization Engineering, Ischia (Bay of Naples), Italy, May 9-13, 2004.
- J. McMillan, D. Zhou, C. Briens, M. Saberian, F. Berruti, "Evaluation of the quality of solid-liquid mixing in a mixing chamber downer", 53rd Canadian Chemical Engineering Conference, Hamilton, Oct. 26-29, 2003.
- S. Ariyapadi, F. Berruti, C. Briens, P. Griffith, "Modeling the mixing of a gas-liquid jet injected into a fluidized bed", 53rd Canadian Chemical Engineering Conference, Hamilton, Oct. 26-29, 2003.
- C. Hulet, F. Berruti, C. Briens, E. Chan, "Novel Fluidized Solids Transport System", 53rd Canadian Chemical Engineering Conference, Hamilton, Oct. 26-29, 2003.
- F. Berruti, C. Briens, S. Ariyapadi, V. Felli, P. House, C. Hulet and M. Saberian, "Injection of Liquids into Gas-Solid Fluidized Beds", AIChE Annual Meeting, San Francisco, Nov. 16-21, 2003.

