

BALRAM SUMAN

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HIGHLIGHTS

- ❖ 8 years experience in modeling and simulation in fluid dynamics, heat and mass transfer, chemical reaction engineering, and process optimization.
- ❖ Experiment research experience in fluid flow and reaction engineering.
- ❖ Strong mathematical and analytical abilities, excellent communication and presentation skills, and ability to work on multiple projects individually or as a part of a team.
- ❖ Authored 4 patent applications (two more under evaluation), 24 refereed journal articles, 2 review articles, one book chapter, and over 10 conference publications.
- ❖ Organized weekly meeting, Math application workshop, and competition for local food bank.

EDUCATION

- ❖ Ph.D. in Chemical Engineering, University of Minnesota, Minneapolis, MN (Adviser: Prof. Satish Kumar, awarded in March, 2008)
- ❖ M.S. in Chemical Engineering, University of Minnesota, Minneapolis, MN (Adviser: Prof. Lanny D. Schmidt, awarded in December, 2005)
- ❖ M.S. in Mathematics, University of Minnesota, Minneapolis, MN (Adviser: Prof. Fadil Santosa, awarded in December, 2005)
- ❖ B.Tech. in Chemical Engineering, Indian Institute of Technology (IIT) Kharagpur, India (Advisors: Profs. S. DasGupta and S. De, awarded in July, 2003)

LEADERSHIP

- ❖ Leading construction competition for local food bank at Corning, NY 2009 – present
- ❖ Organizing weekly department meeting at Corning In. 2009
- ❖ Founding organizer of Math Application Workshop at Corning Inc. 2008 – present
- ❖ Founding General Secretary, IIT Kharagpur Minnesota Chapter 2005 – 2008
- ❖ Founding President, IIT Club at the University of Minnesota 2007 – 2008

HONORS & AWARDS

- ❖ Doctoral Dissertation Fellowship, University of Minnesota, Minneapolis 2007 – 2008
- ❖ Reviewer for over 10 International Journals 2003 – present
- ❖ The Chemical Weekly Prize, IChE 2003
- ❖ Ambuja's Best Project Award, IChE 2003
- ❖ Indian Academy of Science Summer Student Fellowship, IAS 2001

PUBLICATIONS

- ❖ Book Chapter:
 - Balram Suman, Micro-grooved heat pipe, *Advances in Heat Transfer*, Academic Press, vol. 41 to appear in 2008-09.
- ❖ Journals (peer-reviewed):
 1. Balram Suman et al , Based on work at Corning, under consideration with Corning lawyer.
 2. Balram Suman and Satish Kumar, Brownian dynamics simulations of charged dendrimer adsorption in shear flow, in preparation.
 3. Balram Suman, Nazish Hoda and Shweta Jha, Novel orthogonal simulated annealing for multiobjective optimization, submitted to *Journal of Heuristics*, 2009.

4. Balram Suman and Satish Kumar, Draw ratio enhancement of non-isothermal melt spinning, *AIChE Journal*, vol. 55, no. 3, pp. 581-592, 2009.
 5. Balram Suman and Satish Kumar, Brownian dynamics simulations of hydrophobic and charged dendrimer adsorption, *Molecular Simulation*, vol. 35, no. 1&2, pp. 38-49, 2009 **(invited article)**.
 6. Balram Suman, Effects of surface-tension gradient on the performance of a micro-grooved heat pipe: An analytical study, *Microfluidics and Nanofluidics*, vol. 5, no. 5, pp. 655-667, 2008.
 7. Balram Suman and Satish Kumar, Surfactant- and elasticity-induced inertialess instability in a vertically vibrated liquid, *Journal of Fluid Mechanics*, vol. 610, pp. 407-423, 2008.
 8. Balram Suman, Modeling, experiment and fabrication of micro-grooved heat pipes: An update, *Applied Mechanics Reviews*, vol. 60, no. 3, pp. 107-119, 2007.
 9. Balram Suman and Nazish Hoda, A transient model of the capillary limit of a V-shaped micro-grooved heat pipe, *ASME Journal of Heat Transfer*, vol. 129, no. 11, pp. 1584-1591, 2007.
 10. Balram Suman and Satish Kumar, Adsorption of charged dendrimers: A Brownian dynamics study, *Journal of Physical Chemistry B*, vol. 111, no. 30, pp. 8728-8739, 2007.
 11. Balram Suman and Prabhat Kumar, A survey of simulated annealing as a tool for single and multiobjective optimization, *Journal of the Operational Research Society*, vol. 57, no. 10, pp. 1143-1160, 2006.
 12. Balram Suman and Satish Kumar, Dynamics of thin liquid films on surfaces with a time-periodic wettability, *Journal of Colloid and Interface Science*, vol. 304, no.1, pp. 208-213, 2006.
 13. Balram Suman, On the fill charge and sensitivity analysis of a V-shaped micro heat pipe, *AIChE Journal*, vol. 52, no. 9, pp. 3041-3054, 2006.
 14. Balram Suman, A steady state model and maximum heat transport capacity of an electrodynamically augmented micro grooved heat pipe, *International Journal of Heat and Mass Transfer*, vol. 49, no. 21-22, pp. 3957-3967, 2006.
 15. Balram Suman and Prabhat Kumar, An analytical model for fluid flow and heat transfer in a micro heat pipe of polygonal shape, *International Journal of Heat and Mass Transfer*, vol. 48, no. 21-22, pp. 4498-4509, 2005.
 16. Balram Suman, Sirshendu De and Sunando DasGupta, Transient modeling of micro-grooved heat pipe, *International Journal of Heat and Mass Transfer*, vol. 48, no. 8, pp.1633-1646, 2005.
 17. Balram Suman and Nazish Hoda, Effect of variations in thermophysical properties and design parameters on the performance of a V-shaped micro grooved heat pipe, *International Journal of Heat and Mass Transfer*, vol. 48, no. 10, pp. 2090-2101, 2005.
 18. Edward C Wanat, Balram Suman and Lanny D Schmidt, Partial oxidation of alcohols to produce hydrogen and chemicals in millisecond contact time reactors, *Journal of Catalysis*, vol. 235, no. 1, pp. 18-27, 2005.
 19. Balram Suman, Study of self-stopping PDMOSA and performance measure in multiobjective Optimization, *Computers and Chemical Engineering*, vol. 29, no. 5, pp. 1131- 1147, 2005.
 20. Balram Suman, Sirshendu De and Sunando DasGupta, A model of the capillary limit of a polygonal micro heat pipe and prediction of the dry-out length, *International Journal of Heat and Fluid Flow*, vol. 26, no. 3, pp. 495-505, 2005.
 21. Balram Suman, Study of simulated annealing based multiobjective algorithms for multiobjective optimization of a constrained problem, *Computers and Chemical Engineering*, vol. 28, No. 9, pp. 1849 -1871, 2004.
 22. Balram Suman, Study of unsteady state process operation, *Chemical Engineering Journal*, vol. 104, pp. 63-71, 2004.
 23. Balram Suman, Simulated annealing based multiobjective algorithms and their applications for system reliability multiobjective optimization problems, *Engineering Optimization*, vol. 35, no. 4, pp. 391-416, 2003.
 24. Balram Suman, Multiobjective simulated annealing- a metaheuristic technique for multiobjective optimization of a constrained problem, *Foundations of Computing and Decision Sciences*, vol. 27, no. 3, pp. 171- 191, 2002.
- ❖ Conference Presentations
1. Balram Suman and Satish Kumar, Adsorption of charged dendrimers: A Brownian dynamics study, *2007 Annual Meeting of American Institute of Chemical Engineers*, Salt Lake City, UT.
 2. Balram Suman and Satish Kumar, Dynamics of thin liquid films on surfaces with a time-periodic wettability, *2007 Annual Meeting of American Institute of Chemical Engineers*, Salt Lake City, UT.

3. Balram Suman and Satish Kumar, Draw ratio enhancement of non-isothermal melt spinning, *2008 Annual Meeting of American Institute of Chemical Engineers*, Philadelphia, PA.
4. Balram Suman and Satish Kumar, Brownian dynamics simulations of hydrophobic and charged dendrimer adsorption, *2008 Annual Meeting of American Institute of Chemical Engineers*, Philadelphia, PA.
5. Suresh T. Gulati and Balram Suman, Asymmetric Tempering of Silicate Glasses, SAE World Congress & Exhibition, April 2009.

References available upon request.