List of Publication of Dr. Debasis Sarkar

Present Position:

Associate Professor
Department of Chemical Engineering
Indian Institute of Technology Kharagpur
Kharagpur 721 302, India
Tel: +91-3222-283920
Email: dsarkar@che.iitkgp.ernet.in

Patent Details

Bharti, A. K., Chakraborty, J., Sarkar, D. "A cheap and simple attachment to orient any object to desired direction accurately under microscope for efficient viewing and imaging". Filed (Ref. 929/KOL/2013).

List of Research Publications

Journals

1) Maharana, A. and Sarkar, D. "Solubility measurements and thermodynamic modeling of pyrazinamide in five different solvent-antisolvent mixtures", Fluid Phase Equilibria 497 33-54, 2019.

2) Bhoi, S., Das, A., Kumar, J. and Sarkar, D. "Sonofragmentation of two-dimensional plate-like crystals: Experiments and Monte Carlo simulations", *Chemical Engineering Science* 203 (10), 12–27, 2019.

3) Bhoi, S. and Sarkar, D. "Constructing regions of attainable sizes and achieving target size distribution in a batch cooling sonocrystallization process", *Ultrasonics - Sonochemistry* 42, 162–170, 2018.

4) Lenka, M. and Sarkar, D. "Combined cooling and antisolvent crystallization of L-asparagine monohydrate", *Powder Technology* 334, 106–116, 2018.

5) Lenka, M. and Sarkar, D. "Improving crystal size distribution by internal seeding combined cooling/antisolvent crystallization with a cooling/heating cycle", *Journal of Crystal Growth* 486, 130–136, 2018.

6) Lenka, M. and Sarkar, D. "Determination of meatastable zone width and nucleation kinetics for combined cooling and antisolvent crystallization of

Lasparagine monohydrate in water-isopropanol mixture." ***Journal of crystal growth***, 501, 66-73, 2018.

7) Bhoi, S., Lenka, M. and Sarkar, D. "Particle engineering by optimization for the unseeded batch cooling crystallization of L-asparagine monohydrate", ***CrystEngComm***, 19, 6373 – 6382, 2017.

8) Hazi Mastan, T., Lenka, M. and Sarkar, D. "Nucleation kinetics from metastable zone widths for sonocrystallization of L-phenylalanine", **Ultrasonics Sonochemistry**, 36, 497–506, 2017.

9) Bhoi, S. and Sarkar, D. "Modelling and experimental validation of ultrasound assisted unseeded batch cooling crystallization of L-asparagine monohydrate", ***CrystEngComm***, 18, 4863-4874, 2016.

10) Garg, R. K. and Sarkar, D. "Polymorphism control of p-aminobenzoic acid by isothermal anti-solvent crystallization", ***Journal of Crystal Growth***, 454, 180-185, 2016.

11) Lenka, M. and Sarkar, D. "Solubility of L -asparagine monohydrate in water and water- isopropanol mixed solvents: Measurements and thermodynamic modeling", ***Fluid Phase Equilibria***, 412, 168-176, 2016.

12) Jaiswal, A. and Sarkar, D., "In situ determination of metastable zone width by a simple optical probe", ***Crystal Research & Technology***, 50: 347-353, 2015.

13) Lisha, K. P. and Sarkar, D., "In silico analysis of bioethanol overproduction by genetically modified microorganisms in coculture fermentation", ***Biotechnology Research International***, doi:10.1155/2015/238, 2015.

14) Lisha K. Parambil and Debasis Sarkar, "Probing the bioethanol production potential of Scheffersomyces (Pichia) stipitis using validated genome-scale model", ***Biotechnology Letters***, 36:2443–2451, 2014.

15) Lenka, M., and Sarkar, D., "Determination of metastable zone width, induction period and primary nucleation kinetics for cooling crystallization of L-asparagine monohydrate", ***Journal of Crystal Growth***, 408, 85-90, 2014.

16) Lisha K. P. and Sarkar, D., "In silico analysis of bioethanol production from glucose/xylose mixtures during fed-batch fermentation of co-culture and mono-culture systems", ***Biotechnology and Bioprocess Engineering***, 19: 879-891, 2014.

17) Lisha, K.P. and Sarkar, D., "Dynamic flux balance analysis of batch fermentation: effect of genetic manipulations on ethanol production", *Bioprocess and Biosystems Engineering*, 37:617-627, 2014.

18) Chaitanya, K. K. and Sarkar, D., "Determination of the Metastable zone width by a simple optical probe", **Chemical Engineering & Technology**, 37 (6), 1037–1042, 2014.

19) Chakraborty, J., Sarkar, D., Singh, A., and Bharti, A.K., "Measuring the three-dimensional morphology of crystals using regular reflection of light", *Crystal Growth & Design*, 12, 6042-6049, 2012.

20) Sarkar, D., Doan, X. T., Ying, Z., Srinivasan, R., "In-situ particle size estimation for crystallization processes by multivariate image analysis", *Chemical Engineering Science,* 64(1), 9-19, 2009.

21) Sarkar, D., Ying, Z., Samavedham, L., Srinivasan, R., "Strategy for validating a population balance model of a batch crystallization process using particle size distribution from image-based sensor", *Computer Aided Chemical Engineering*, 26, 833-837, 2009.

22) Sarkar, D., Rohani, S., and Jutan, A., "Multi-objective optimization of semi-batch reactive crystallization processes", *AIChE Journal*, 53(5), 1164-1177, 2007

23) Sarkar, D. and Modak, J. M., "Dynamic reoptimisation of fed-batch bioreactors using genetic algorithms", *Indian Chemical Engineer,* 49(4), 375-391, 2007.

24) Sarkar, D., Rohani, S., and Jutan, A., "Multi-objective optimization of seeded batch crystallization processes", *Chemical Engineering Science*, 61(16), 5282-5295, 2006.

25) Sarkar, D. and Modak, J. M., "Optimal design of multiproduct batch chemical plant using NSGA-II", *Asia-Pacific Journal of Chemical Engineering,* 1(1/2), 13-20, 2006.

26) Sarkar, D. and Modak, J. M., "Pareto-optimal solutions for multi-objective optimization of fed-batch bioreactors using nondominated sorting genetic algorithms", *Chemical Engineering Science*, 60(2), 481-492, 2005.

27) Sarkar, D. and Modak, J. M., "Genetic algorithms with filters for optimal control problems", *Bio-systems and Bioprocess Engineering*, 263, 295-306, 2004.

28) Sarkar, D. and Modak, J. M., "Optimization of fed-batch bioreactors using genetic algorithms: multiple control variables", *Computers and Chemical Engineering*, 28(5), 789-798, 2004.

29) Sarkar, D. and Modak, J. M., "ANNSA: A hybrid artificial neural network-simulated annealing algorithm for optimal control problems". *Chemical Engineering Science,* 58(14), 3131-3142, 2003.

30) Sarkar, D. and Modak, J. M., "Optimization of fed-batch bioreactors using genetic algorithms", *Chemical Engineering Science,* 58(11), 2283-2296*, 2003.

31) Sarkar, D. and Modak, J. M., "Optimization of fed-batch bioreactors using genetic algorithms: two control variables", In Kraslawski, A. and Turunen, I. (Eds) *Computer Aided Process Engineering - 13*, Elsevier, Amsterdam, pp. 1127-1132, 2003.

32) Sarkar, D. and Modak, J.M., "Adaptive optimization of continuous bioreactor using neural network model", *Chemical Engineering Communications*, 143, 99-116, 1996.

Important International Conference

33) Sarkar, D., Jutan, A., and Rohani, S., "A fuzzy logic based approach to real time optimization of dynamic processes'', *European Control Conference 2007*, Kos, Greece 2-5 July, 2007.

34) K.P. Lisha and Debasis Sarkar, "Dynamic flux balance modeling of fed-batch co-culture fermentation of glucose/xylose mixture for improved bioethanol". 2011 3rd International Conference on Chemical, Biological and Environmental Engineering **IPCBEE 2011** 20:92-96, Shanghai, China.

35) Sarkar, D. and Krishna Chaitanya, K., "Determination of metastable zone width for anti-solvent crystallization of glycine", **AIChE Annual Meeting 2012**, Oct 28 - Nov 2, 2012, Pittsburgh, PA, USA.

36) Chakraborty, J., Sarkar, D. and Singh, A., "Measurement of crystal morphology: a new method based on reflection of light from crystal faces", **AIChE Annual Meeting 2012**, Oct 28 - Nov 2, 2012, Pittsburgh, PA, USA.

37) Lenka, M. and Sarkar, D. "Combined cooling and anti-solvent crystallization of l-asparagine monohydrate", **BIWIC 2016 - 23rd International Workshop on Industrial Crystallization**, September 06 – 08, 2016, Magdeburg, Germany.

38) Bhoi, S. and Sarkar, D. "Sonocrystallization of L-asparagine monohydrate", **BIWIC 2016 - 23rd International Workshop on Industrial Crystallization**, September 6 – 8, 2016, Magdeburg, Germany.

39) Lenka, M. and Sarkar, D. "Combined cooling and anti-solvent crystallization of l-asparagine monohydrate", **AIChE Annual Meeting 2016,** Nov 13-18, 2016, San Francisco, CA, USA.

40) Bhoi, S. and Sarkar, D. "Sonocrystallization of L-asparagine monohydrate: modeling and optimization", **AIChE Annual Meeting 2016,** Nov 13-18, 2016, San Francisco, CA, USA.

41) Bhoi, S. and Sarkar, D. "Modeling and optimization of ultrasound assisted crystallization of L asparagine monohydrate", **ACS National Meeting and Exposition, April 2 – 7, 2017**, San Francisco, CA, USA.

42) Lenka, M. and Sarkar, "Study on combined cooling and antisolvent crystallization of L- asparagine monohydrate", **ACS National Meeting and Exposition, April 2 – 7, 2017**, San Francisco, CA, USA.

43) Kumar A., Jaideep Singh Chauhan, J. S. and Sarkar, D. "Image Segmentation of Multi-shaped Overlapping Objects" Proceedings of the 13th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications **(VISIGRAPP 2018, Funchal, Madeira – Portugal, January 27 – 29, 2018)**, Volume 4: VISAPP, Pages 410-418.

44) Ghosh, A. and Sarkar, D. "Molecule2Vec: Vector Space Representation of Organic Molecules for prediction of properties using Deep Neural networks", **7th EuCheMS Chemistry Congress**, Liverpool, UK, August 26 – 30, 2018.

45) Lisha, K. P. and Sarkar, D. "Dynamic Flux Balance Analysis of Bioethanol Production by Zymomonas Mobilis", **Sustainable Energy and Environmental Sciences (SEES - 2019),** February 18 – 19, 2019, Singapore.

46) Bhoi, S. and Sarkar, D. "Particle size control by ultrasound", **Spring 2019 ACS National Meeting and Exposition, March 31- April 4, 2019**, Orlando, Florida, USA

Important National Conference

47) Lisha K.P. and Debasis Sarkar, "Dynamic flux balance modeling of batch fermentation of glucose/xylose mixture for improved bioethanol production". Proceedings of Indian Chemical Engineering Congress-**CHEMCON 2011**:389-390.

48) Lisha K.P. and Debasis Sarkar, "Dynamic flux balance modeling of fed-batch co-culture fermentation for improved bioethanol production: effect of various genetic manipulations and glucose to xylose ratio". Proceedings of 65th Annual Session of Indian Institute of Chemical Engineers-**CHEMCON 2012**: P-227.

49) Lisha K.P. and Debasis Sarkar, "In silico analysis of bioethanol production by microbial consortia: effect of genetic modifications". 66th Annual Session of Indian Institute of Chemical Engineers-**CHEMCON 2013**: P-44.

50) Barik, K., Sarkar, D., "Multi-objective optimization of a combined cooling and anti-solvent crystallization process", **CHEMCON 2013**, Dec 27-30, Mumbai, India.

51) Lisha, K.P. and Sarkar, D., "In silico analysis of bioethanol production by microbial consortia: effect of genetic modifications", **CHEMCON 2013**, Dec 27-30, Mumbai, India.

52) Bhoi, S., Lenka, M. and Sarkar, D., "Population Balance Modeling of Batch Cooling Crystallization of L-asparagine Monohydrate", **CHEMCON 2014**, December 27-30, 2014, Chandigarh, India.

53) Lenka, M. and Sarkar, D., "Undeeded Batch Cooling Crystallization of L-asparagine Monohydrate", **CHEMCON 2014**, December 27-30, 2014, Chandigarh, India.

54) Pattanayak, L. and Sarkar, D. "Cooling co-crystallisation of caffeine and cinnamic acid", **CHEMCON 2017**, Dec 27-30, Haldia, India.