

Dr. DEBASISH SARKAR

P-10, Kalindi housing Estate

Kolkata: 700089

Email: debasish.sarkaruce@gmail.com,
deschemengg@caluniv.ac.in

Mobile: 9330806040

Nationality: Indian

Sex: Male

Marital Status: Married

Father's Name: Late Mr. Ardhendu Sarkar

Date of Birth: 03.01.1978

Religion: Atheist

Present Position: Associate Professor in The Department of Chemical Engineering, University of Calcutta since 25.09.2013.

Previous Experience:

- (i) Assistant Professor in The Department of Chemical Engineering, University of Calcutta (From 03.11.2006 to 24.09.2013)
- (ii) Lecturer (Sr. scale) in The Department of Chemical Engineering, Heritage Institute of Technology (From 1st June, 2005 to 2nd November, 2006)
- (iii) Lecturer in The Department of Chemical Engineering, Heritage Institute of Technology (From 15th June, 2003 to 31st May, 2006)

Professional Experience:

1. *Sponsored Projects:*

- (a) "Optimizing the low power alternating field frequency to minimize the polarization/fouling in membrane filtration of whey proteins" funded by **DST**, Govt. of India [ongoing project (2016-2019), total funding: **Rs. 20,40,000/-**, mentor]
- (b) "Quantifying morphological alteration of RBC population" funded by **TEQIP-Phase II**, University of Calcutta [completed project (2013-2014), total funding: **Rs. 1,00,000/-**, principal investigator].
- (b) "Development of Novel High shear Membrane Module" funded by **DST**, Govt. of India [completed project (2011-2014), total funding: **Rs. 2,056,060/-**, principal investigator].
- (c) "Utilization of Solar Energy for degradation of refractory organic pollutants in waste water by photo-Fenton oxidation" funded **WBDST** [completed project (2012-2014) with a total funding of **Rs. 6,44,350/-**, Co-investigator].
- (d) "On the removal of hexavalent chromium from wastewater" funded **UGC** [completed project (2009-2012) with a total funding of **Rs. 9,61,800/-**, Co-investigator].

(e) Treatability studies for **M/s Vegetable Products Limited** (under CUIPP) [completed project under Calcutta University-Institute Partnership Programme (2012-2013) Total funding: Rs. 1,60,000/-, Co-investigator].

Educational Qualification:

Name of the Degree	Institution/University	Year	Particulars (%Marks/credit Points or thesis title)
PhD (Engg.)	Jadavpur University	2010	<i>Title of the Thesis: Studies on Mathematical Modeling of Ultrafiltration Processes</i>
M.Tech (Chemical Engineering)	IIT Bombay	2003	Credit Point Index: 9.91
B.Ch.E	Jadavpur University	2001	83.3%

Publications:

(a) *Journal articles:*

(i) *International*

1. **Debasish Sarkar** and Chiranjib Bhattacharjee, Modeling and analytical simulation of rotating disk ultrafiltration module, *J. Membr. Sci.*, 320 (2008) pp. 344-355.
2. **Debasish Sarkar**, Sampa Chakrabarti, Binay K. Dutta, Diffusion of mythelene blue in glass fibers-Application of shrinking core model, *Appl. Math. Modelling*, 33 (2009) pp. 2874-2881.
3. T. K. Naiya, A. K. Bhattacharjee, **D. Sarkar** and S. K. Das, Applicability of shrinking core model on the adsorption of heavy metals by clarified sludge from aqueous solution, *Adsorption*, 15 (2009) pp. 354-364.
4. **Debasish Sarkar**, Apratim Bhattacharya and Chiranjib Bhattacharjee, Modeling the performance of a standard single stirred ultrafiltration cell using variable velocity back transport flux, *Desalination*, 261 (2010) pp. 89-98.
5. **Debasish Sarkar** and Amitava Bandyopadhyay, Adsorptive mass transport of dye on Rice Husk Ash, *J. Water Resources and Prot.*, 2 (2010) pp. 424-431.
6. **D. Sarkar**, S. K. Das, P. Mukherjee and A. Bandyopadhyay, Proposed adsorption-diffusion model for characterizing chromium (VI) removal using dried water hyacinth roots, *CLEAN-Soil, Air, Water* 38(8) (2010) pp. 764-770.
7. **Debasish Sarkar**, Apratim Bhattacharjee, Chiranjib Bhattacharjee and Dulal C. Mukherjee, Modeling and Simulation of unstirred dead end ultrafiltration of macromolecules, *J. Indian Chem. Soc.*, 87 (2010) pp. 105-116.

8. **Debasish Sarkar**, Ankur Sarkar, Monojit Chakraborty, Soumyajit Sen and Chiranjib Bhattacharjee, Transient solute adsorption incorporated modeling and simulation of unstirred dead-end ultrafiltration of macromolecules: an approach based on self-consistent field theory, *Desalination*, 273 (2011) pp. 155-167.
9. **Debasish Sarkar** and Amitava Bandyopadhyay, Shrinking Core Model in characterizing aqueous phase dye adsorption, *Chem. Eng. Res. & Design*, 89 (2011) pp. 69-77.
10. **Debasish Sarkar**, Diptendu Datta, Dwaipayan Sen and Chiranjib Bhattacharjee, Simulation of continuous stirred rotating disk-membrane module: An approach based on surface renewal theory, *Chem. Eng. Sci.*, 66 (2011) pp. 2554-2567.
11. Pallavi Mitra, **Debasish Sarkar**, Sampa Chakrabarti and Binay K. Dutta, Reduction of hexavalent chromium with zero-valent iron: Batch kinetic studies and rate model, *Chem Eng. J.*, 171 (2011) pp. 54-60.
12. Diptendu Datta, Ankur Sarkar, **Debasish Sarkar**, Chiranjib Bhattacharjee and Dulal C. Mukherjee, Characterization of bovine serum albumin adsorption onto polyethersulfone ultrafiltration membrane, *J. Indian Chem. Soc.*, 88 (2011) pp. 1305-1318.
13. Ankur Sarkar, **Debasish Sarkar** and Chiranjib Bhattacharjee, Design and performance characterization of a new shear enhanced module with inbuilt cleaning arrangement, *J Chem Technol Biotechnol*, 87 (2012) pp. 1121-1130.
14. Ankur Sarkar, Siddhartha Moulik, **Debasish Sarkar**, Anirban Roy and Chiranjib Bhattacharjee, Performance characterization and CFD analysis of a novel shear enhanced membrane module in ultrafiltration of Bovine Serum Albumin (BSA), *Desalination*, 292 (2012) pp. 53-63.
15. Ankur Sarkar, **Debasish Sarkar**, Madhurima Gupta and Chiranjib Bhattacharjee, Recovery of Polyvinyl alcohol from desizing waste water using a novel high shear ultrafiltration module, *CLEAN – Soil, Air, Water* 40 (8) (2012) pp. 830-837
16. **Debasish Sarkar**, Ankur Sarkar, Anirban Roy, Chiranjib Bhattacharjee, Performance characterization and design evaluation of Spinning Basket Membrane (SBM) module using computational fluid dynamics (CFD), *Sep. Puri. Technol.* 94 (2012) pp. 23-33.
17. **Debasish Sarkar**, Shirshendu Bardhan, Amitava Bandyopadhyay, Monojit Chakraborty and Chiranjib Bhattacharjee, Simulation of Continuous Stirred Ultrafiltration process: an approach based on Surface Renewal Theory, *Asia-Pac. J. Chem. Eng.* 7 (2012) pp. 279-294.
18. Debojyoti Chakraborty, **Debasish Sarkar**, Chiranjib Bhattacharjee, Modeling and Simulation of Rotating Disk-Membrane module in ultrafiltration of bovine serum albumin, *Sep. Sci. Technol.* 48 (2013) pp. 2549-2566.
19. **Debasish Sarkar**, Sudip Kumar Das and Amitava Bandyopadhyay, Analysis of Bio-adsorption of Cr(VI) onto Rae Rice Husk by a Hybrid Theoretical Model using the results of Batch Experiments, *Adsorption Sci. Technol.* 31 (8) (2013) pp. 747-765.

20. P. Mitra, P. Banerjee, **D. Sarkar** and S. Chakrabarti, Commercial steel wool for reduction of hexavalent chromium in wastewater: batch kinetic studies and rate model, *Int. J. Environ. Sci. Technol.* 11 (2014) pp. 449-460.
21. Sirsha Putatunda, Dwaipayan Sen, Ankur Sarkar, Ranjana Chowdhury, **Debasish Sarkar** and Chiranjib Bhattacharjee, Two indigenous high sheared membrane modules' performance expatriation for the ultrafiltration of polyethylene glycol, *RSC Adv.* 4 (2014) pp. 6435-6466.
22. Sayari Ghosh, Raghwendra Mishra, **Debasish Sarkar**, Roshnara Mishra, Dulal C. Mukherjee, The use of artificial neural network (ANN) for rapid quantification of morphological alteration of Red blood cell, *J. Indian Chem. Soc.* 91 (8) (2014) pp. 1601-1610.
23. **Debasish Sarkar**, Debojyoti Chakraborty, Mithu Naskar, Chiranjib Bhattacharjee, Characterization and Modeling of Radial Flow Membrane (RFM) module in Ultrafiltration, *Desalination* 354 (2014) pp. 76–86.
24. Amrita Dutta, Prantik Banerjee, **Debasish Sarkar**, Sekhar Bhattacharjee, Sampa Chakrabarti, Degradation of Trypan Blue in wastewater by sunlight assisted modified photo-Fenton reaction, *Desalination and Water Treatment* 56 (6) (2015) 1498-1506.
25. Raghwendra Mishra, **Debasish Sarkar**, Sourav Bhattacharya, Sanjaya Mallick, Mousumi Chakraborty, Debarati Mukherjee, Manoj Kar, Roshnara Mishra, Quantifying morphological alteration of RBC population from light scattering data, *Clinical Hemorheology and Microcirculation* 59 (2015) pp. 287-300.
26. Sayari Ghosh, Raghwendra Mishra, Ishita Chakraborty, **Debasish Sarkar**, Developing the morphological scale of RBC population from membrane roughness data obtained from atomic force microscopy, *ScienceJet* 4(2015) 176.
27. Mithu Naskar and **Debasish Sarkar**, Design and performance characterization of a novel shear enhanced membrane module in treatment of desizing waste water, *The global journal of Environmental Science and Research* 2 (1) (2015) pp. 55-60.
28. Amrita Dutta, Ishita Chakraborty, **Debasish Sarkar** and Sampa Chakrabarti, Sunlight-Assisted Photo-Fenton Degradation of Pesticide in Wastewater: Ecotoxicological Impact on Nostoc sp. Algae, *Water Air Soil Pollut* (2015) 226:398
29. Papri Saha and **Debasish Sarkar**, Robustness measure of hybrid intra-particle entanglement, discord and classical correlation with initial Werner state, *Quantum Information Processing* 15 (2016) pp. 791-807.
30. Avisha Chowdhury, **Debasish Sarkar**, Debarati Mitra and Dipa Biswas, Esterification of free fatty acids derived from waste cooking oil with octanol: Process optimization and kinetic modeling, *Chem. Eng. Technol.* 39 (4) (2016) pp. 730–740.
31. Sayari Ghosh, Ishita Chakraborty, Monojit Chakraborty, Ashis Mukhopadhyay, Raghwendra Mishra, **Debasish Sarkar**, Evaluating the morphology of erythrocyte population: An approach based on atomic force microscopy and flow cytometry, *Biochimica et Biophysica Acta* 1858 (2016) pp. 671–681.

32. Debojyoti Chakraborty, Mithu Naskar, **Debasish Sarkar**, and Chiranjib Bhattacharjee, Performance characterization and steady-state modelling of spinning basket membrane module, *Separation Science and Technology* 52 (13) (2017) pp. 2173-2189.
33. Ayantika Sett, Uzma Bano, and Sunando DasGupta, **Debasish Sarkar**, Arijit Mitra and Siddhartha Das and Swagata Dasgupta, Capillary Driven Flow in Wettability Altered Microchannel, *AIChE Journal* 63 (10) (2017) pp. 4616-4527.
34. Ishita Chakraborty, Susmita Roy, Sayari Ghosh, Mahua Ghosh, Dulal C. Mukherjee and **Debasish Sarkar**, Solvent selection in extraction of bioactive and therapeutic components from Indian fresh water mussel *Lamellidens marginalis*, *J. Indian Chem. Soc.* 94 (9) (2017) pp. 993-1008.
35. Sayari Ghosh, Arpan Roy, Ishita Chakraborty, Manikuntala Mukhopadhyay, Sunando Dasgupta and **Debasish Sarkar**, Fractal Dimension of Erythrocyte Membranes: A Highly Useful Precursor for Rapid Morphological Assay, *Annals of Biomedical Engineering* 46 (9)(2018) pp. 1362–1375.
36. Mithu Naskar, Basudeb Das, Digvijayee Pal, **Debasish Sarkar**, Performance of Intermeshed Spinning Basket Membrane Module in Ultrafiltration of Oil-Water Emulsion, *Water Conservation Science and Engineering* (2018) doi.org/10.1007/s41101-018-0056-4.
37. Manikuntala Mukhopadhyay, Udit Uday Ghosh, **Debasish Sarkar**, Sunando DasGupta, Surface property induced morphological alterations of human erythrocytes, *Soft Matter* 14 (2018) pp. 7335-7346.
38. Amrita Dutta, Nayan Das, **Debasish Sarkar**, Sampa Chakrabarti, Development and characterization of a continuous solar-collector-reactor for wastewater treatment by photo-Fenton process, *Solar Energy* 177 (2019) pp. 364-373.
39. Mithu Naskar, Keka Rana, Deepansu Chatterjee, Trina Dhara, Ruhi Sultana, **Debasish Sarkar**, Design, Performance Characterization and Hydrodynamic Modeling of Intermeshed Spinning Basket Membrane (ISBM) Module, *Chem. Eng. Sci.* 206 (2019) pp. 446-462.
40. Manikuntala Mukhopadhyay, Rudra Ray, Manish Ayushman, Pourush Sood, Maitreyee Bhattacharyya, **Debasish Sarkar**, Sunando Dasgupta, Interfacial Energy Driven Distinctive Pattern Formation during the Drying of Blood Droplets, *J. Coll. Interf. Sci.* 573 (2020) pp. 307-316.

(ii) *National*

1. Mandip Saha Roy, Pallavi Mitra, **Debasish Sarkar**, Sampa Chakrabarti, Removal of hexavalent chromium from wastewater by reduction with zero valent iron and subsequent precipitation by alkali, *J. Indian Leather. Technologist's Association*, (2011) pp. 165-171.
2. Pallavi Mitra, Sandeep Karmakar, **Debasish Sarkar**, Sampa Chakrabarti, Chemical reduction of hexavalent chromium in wastewater-effect of pH and dosing of Mohr salt, *J. Indian Leather. Technologist's Association*, (2011) pp. 328-334.

(b) *Conference publications:*

1. Mithu Naskar, Kalpana Biswas, Chiranjib Bhattacharjee and **Debasish Sarkar**, Membrane Filtration of Pine oil Emulsion: Design and Application of a Novel Shear Enhanced Module, 6th International Conference on Developments in Engineering and Technology (ICDET-2017), Bangkok, Thailand.
2. Mithu Naskar, Basudeb Das, Digvijayee Pal and **Debasish Sarkar**, Performance of Intermeshed Spinning Basket Membrane Module in Ultrafiltration of Oil-Water Emulsion, CHEMCON 2016 at A.C. Tech., Anna University, Chennai.
3. Mithu Naskar and **Debasish Sarkar**, Remediation of desizing wastewater using a dynamic shear enhanced module, CHEMCON 2016 at A.C. Tech., Anna University, Chennai.
4. Sayari Ghosh, Arpan Roy, **Debasish Sarkar**, Assessment of Morphologically Altered RBCs using Image Processing Tools, International Conference on Advances in Bioprocess Engineering and Technology 2016 at Heritage Institute of Technology, Kolkata (ICABET 2016), Proceedings: *Materials Today: Proceedings* 3 (2016) 3361-3366.
5. S. Ghosh, A. Roy, N. Das and **D. Sarkar**, Morphological Scoring of Human Erythrocytes: an approach based on Atomic Force Microscopy, NANOCON 2016 at Jadavpur University, Kolkata, India.
6. S. Ghosh, A. Roy and **D. Sarkar**, Rapid Morphological Assay of Human Erythrocytes-an Approach Based On Image Analysis (NT051), CHEMCON 2015 at IIT Guwahati, Assam, India.
7. M. Naskar, S. Jana and **D. Sarkar**, Characterization and modeling of intermeshed spinning basket membrane module in ultrafiltration of bovine serum albumin, presented in CHEMCON 2015 at IIT Guwahati, Assam, India.
8. Papri Saha and **Debasish Sarkar**, Quantum Discord in a single particle system presented in the 2nd International Conference on Nanotechnology, 2015 at HITK, Haldia, India.
9. Mithu Naskar, **Debasish Sarkar**, Design and Performance Characterization of a Novel Shear Enhanced membrane Module in the Treatment of Desizing Waste Water, presented in the International Conference on Environment & Ecology, 2015 at Kolkata, India.
10. Sayari Ghosh, **Debasish Sarkar**, Raghwendra Mishra, Ishita Chakraborty, Developing the morphological scale of RBC population from membrane roughness data obtained from Atomic Force Microscopy, presented in the 2nd International Conference on Nanotechnology, 2015 at HITK, Haldia, India.
11. M. Naskar, **D. Sarkar**, Performance Characteristics of Intermeshed Spinning Basket Membrane (ISBM) module by PVDF membrane using desizing waste water, presented in the International Conference on Water from Pollution to Protection, 2015 at Kottayam, India.
12. A. Dutta, S. Chakrabarti, **D. Sarkar**, Degradation of Trypan Blue Dye in Aqueous Solution by photo-Fenton Reaction: Comparison between two sources of light, presented in the national conference on Environment: Pollution and Protection, 2014 at NIT Durgapur, India.
13. Amrita Dutta, Sanjukta Datta, Mahua Ghosh, **Debasish Sarkar**, Sampa Chakrabarti, Sunlight-assisted photo-Fenton process for removal of insecticide from agricultural

wastewater, presented in the 1st International Forum on Asian Water Environment Technology, 2013 at New Delhi, India.

14. A. Dutta, S. Chakrabarti, **D. Sarkar**, Degradation of Trypan Blue Dye in Aqueous Solution by Photo-Fenton Reaction: Comparison between Two Sources of Light (EPP-2014), presented in Three Days National Conference on Environment: Pollution and Protection, 2014 at NIT Durgapur.
15. Ankur Sarkar, Siddhartha Moulik, **Debasish Sarkar**, Chiranjib Bhattacharjee, Performance characterization of a novel high shear membrane module in ultrafiltration of Bovine Serum Albumin (BSA), presented in the Indian Chemical Engineering Congress, 2011 at Bangalore.
16. Sirsha Putatunda, Ankur Sarkar, Santanu Sarkar, Dwaipayan Sen, **Debasish Sarkar**, Chiranjib Bhattacharjee, Ranjana Chowdhury, Effect of high shear membrane module on PEG separation: A comparative elucidation with Radial Flow Membrane Module (RFMM) and Turbine Flow Membrane Module (TFMM), presented in the Indian Chemical Engineering Congress, 2011 at Bangalore.
17. Sampa Chakrabarti, Pallavi Mitra, **Debasish Sarkar** and Sekhar Bhattacharjee, Removal of Hexavalent Chromium from Wastewater by Reduction with Steel Wool and Subsequent Precipitation, presented by Dr. Sampa Chakrabarti in the International Conference on Environmental Science and Technology (ICEST), 2010 at Bangkok.
18. Debasish Sarkar and Amitava Bandyopadhyay, Dried water hyacinth for the removal of Cr(VI), presented in the Indian Chemical Engineering Congress, 2010 at Annamalainagar, Chidambaram.
19. Diptendu Datta, **Debasish Sarkar**, Monojit Chakraborty, Chiranjib Bhattacharjee, Surface Renewal theory based Modeling and simulation of rotating disk membrane module, presented in the Indian Chemical Engineering Congress, 2010 at Annamalainagar, Chidambaram.
20. **Debasish Sarkar** and Amitava Bandyopadhyay, Adsorption studies of methylene blue and congo red dye onto rice husk ash, presented in the national seminar on WEALTH FROM WASTE, 2009 at Kolkata
21. Apratim Bhattacharjee, Anirban Roy, **Debasish Sarkar** and Chiranjib Bhattacharjee, Modeling of adsorption of ammonia from coke oven gas by water in a falling liquid film, presented in the Indian Chemical Engineering Congress, 2009 at Visakhapatnam.
22. **Debasish Sarkar**, Shirshendu Bardhan, Amitava Bandyopadhyay, Anwesha Chaudhury and Chiranjib Bhattacharjee, Analysis of continuous stirred ultrafiltration process based on surface renewal theory, presented in the Indian Chemical Engineering Congress, 2009 Visakhapatnam.

Art Publications:

1. **Debasish Sarkar**, Anxious Cities: The Scheduled Collapse of Yesterday's Cakes, *Art Connect* 3 (1) (2009) pp. 50-67.

Book/Book Chapters:

1. Amrita Dutta, Sampa Chakrabarti, **Debasish Sarkar**, Degradation of Trypan Blue dye in aqueous solution by photo-Fenton reaction: comparison between two sources of light, Environmental Pollution and Protection: Pollution and Protection, edited by K. Adhikari et al., ISBN 978-81-8487-4105, 2015, Narosa Publishing House Pvt. Ltd., New Delhi, India.

2. Amrita Dutta, Sanjukta Dutta, Mahua Ghosh, **Debasish Sarkar**, Sampa Chakrabarti, Sunlight assisted photo-Fenton process for removal of insecticide from agricultural wastewater, Trends in Asian Water Environmental Science and Technology, edited by F. Kurishu et al., ISBN 978-3-319-39257-8, Springer International Publishing Co., Switzerland.

Research Supervision (Ph.D awarded/thesis submitted):

Name of the student	Title of the thesis	year
Diptendu Datta (63/06/E) Jadavpur University	Protein Separation using Membrane Technology	2012 (completed)
Ankur Sarkar (D-7/E/807/10) Jadavpur University	Development of Novel High Shear Membrane Module	2012 (completed)
Sudip Kumar Das (No. 2800/ PhD (Tech)) University of Calcutta	Studies on low cost adsorbents derived from rice husk and water hyacinth root for removal of Cr(VI) from industrial effluents	2017 (completed)
Debojyoti Chakraborty (10/12/E) Jadavpur University	Some studies on the performance characteristics of shear enhanced membrane module	2016 (completed)
Amrita Dutta (No. 3683/ PhD (Sc.)) University of Calcutta	Solar Photo-Fenton Degradation of Azo Dye and Pesticide in Wastewater: Study of Batch and Continuous Processes	2017 (completed)
Sayari Ghosh University of Calcutta	Quantifying morphological alteration of RBC population	2019 (thesis submitted)
Mithu Naskar University of Calcutta	Hydrodynamic simulation of shear enhanced membrane modules	2019 (thesis submitted)

Awards:

1. Received Session best paper award in the 6th International Conference on Developments in Engineering and Technology (ICDET-2017) at Bangkok, Thailand, February 6-7, 2017.

2. Received best paper award under the category of “Membrane Technology” in the oral session of CHEMCON 2016 at Chennai, India, December 27-30, 2016.

3. Awarded 2nd best paper under the category of CHEMICAL TECHNOLOGY in the poster session of CHEMCON 2016 at Chennai, India, December 27-30, 2016.

4. Received General Electric (GE) Fund Scholarship for Leadership & Academic Excellence during M.Tech in IIT Bombay (2002).

5. Received Hiralal Roy Memorial Medal for securing highest score in the General Viva of Chemistry & Chemical Engineering during B.Ch.E in Jadavpur University (2001).