Saurav Datta

Research Engineer
Energy Systems Division
Argonne National Laboratory
9700 S. Cass Avenue
Argonne, IL 60439

Office: (630) 252-6944
Cell: (312) 401-4332
E-mail: sdatta@anl.gov

EDUCATION

08/2003 – 12/2007 **University of Kentucky,** Lexington, KY
Ph.D. in Chemical Engineering, Advisor: Prof. Dibakar Bhattacharyya
Dissertation Title: *Functionalized Polymeric membranes for Bio-Separation and Bio-Catalysis*

01/2001 − 07/2002 **Indian Institute of Technology,** Kanpur, India
Masters of Technology in Chemical Engineering, Advisor: Dr. N. Verma
Thesis Title: *Removal of organics from aqueous solution using emulsion liquid membrane*

08/1997 − 05/2000 **University College of Science and Technology**, Calcutta, India
Bachelor of Technology in Chemical Engineering, Advisor: Prof. B. K. Dutta

09/1994 − 05/1997 **University of Calcutta**, Calcutta, India
Bachelor of Science in Chemistry

PROSSIONAL EXPERIENCE

02/2011-Present Research Engineer, Energy Systems Division, Argonne National Laboratory
02/2008 – 02/2011 Postdoctoral Appointee, Energy Systems Division Argonne National Laboratory

RESEARCH EXPERIENCE

02/2008 – Present **Argonne National Laboratory** Argonne, IL

- Novel electrochemical technique for capture of CO_2 from flue gas
- Various separation techniques used in the production of biofuels
- Various membrane based techniques, including electrodialysis (ED) and electrodeionization (EDI), for different energy efficient processes
- Simultaneous enzyme assisted production of organic acids and separation using electrodeionization (EDI) based separative-bioreactor

08/2003 – 12/2007 **University of Kentucky** Lexington, KY

- Separation and purification of a target protein from mixture of proteins using affinity membrane separation (membrane chromatography) technique
- Ultrafiltration, Microfiltration, Nanofiltration, Diafiltration
- Mathematical modeling of transport and interactions of bio-molecules within membrane
- Bio-catalysis of substrates using enzyme functionalized polymeric membranes
- Dechlorination of chloro-organics using functionalized membrane based process

09/2002 – 04/2003: Research Associate at Environmental Pollution and Control Laboratory,
Indian Institute of Technology Kanpur, India

- Removal of organics from water using fluidized bed reactor

01/2001 – 07/2002 **Indian Institute of Technology** Kanpur, India

- Removal of organics from aqueous solution using emulsion liquid membrane

09/1999 – 05/2000 **University of Calcutta** Calcutta, India

- Reduction of chromium (VI) to chromium (IV) using Iron (0)

PROFESSIONAL ACTIVITIES

1. Session co-chair 2011 Annual Meeting of AIChE, Minneapolis, USA
2. Judge of 2010 DOE-Science and Energy Research Challenge (SERC)
3. Reviewer of 2010 US DOE-SBIR Phase-I grant
4. Reviewer of Journal of Membrane Science

PATENT APPLICATION

1. Carbon dioxide capture using resin-wafer electrodeionization, Y. J. Lin, S. W. Snyder, **S. Datta**, M. Trachtenberg, R. Cowen, U.S. Patent application ***20100300894,*** Dec 2, 2010

JOURNAL PUBLICATIONS

1. **S. Datta**, Seth W. Snyder, Akash A. Moradia, Michael P. Henry, Cindy S. Millard, Yupo J. Lin, Removal of ionic impurities from biomass hydrolysate using electrodeionization, Manuscript in preparation
2. **S. Datta**, Jianwei Yuan, Michael P. Henry, Sabeen F. Ahmad, Cindy S. Millard, Shah, Jitendra, Wesoloski, Lisa, Stiles, Rebecca L., Robert Dorner, Musale, Deepak, Cathy C Doucette, Schabacker, Daniel S., Doctor, Richard D., Seth W. Snyder, Wayne M. Carlson, Yupo J. Lin, Novel CO_2 capture technique based on electrodeionization, Manuscript in preparation
3. S. R. Lewis, **S Datta**, M. Gui, F. E. Huggins, S. Daunert, L. G. Bachas, D. Bhattacharyya, Reactive Nanostructured Membranes for Water Purification, *Proceedings of The National Academy of Sciences USA*, **108** (2011) 8577-8582
4. R. N. Gurram, **S. Datta**, Yupo J. Lin, Seth W. Snyder, and Todd J. Menkhaus, Removal of Enzymatic and Fermentation Inhibitory Compounds from Biomass Slurries for Enhanced Biorefinery Process Efficiencies, *Bioresource Technology*, Accepted 2011
5. **S. Datta**, B. D. Bals, Yupo J. Lin, M. C. Negri, R. Datta, L. Pasieta, Sabeen F. Ahmad, Akash A. Moradia, B. E. Dale, Seth W. Snyder, An Attempt towards Simultaneous Biobased Solvent Based Extraction of Proteins and Enzymatic Saccharification of Cellulosic Materials from Distiller's Grains and Solubles, *Bioresource Technology*, **101** (2010) 5444-5448)
6. **S. Datta**, C. Cecil, D. Bhattacharyya, Functionalized Membranes by Layer-By-Layer Assembly of Polyelectrolytes and In Situ Polymerization of Acrylic Acid for Applications in Enzymatic Catalysis, *Ind. Eng. Chem. Res.*, **47** (2008), 4586–4597
7. **S. Datta**, Philip D. Ray, A. Nath, D. Bhattacharyya, Selective separation of HIV-Tat protein using functionalized stacked microfiltration membranes: Enhancement of flux and recovery of protein, *Separation Science and Technology* **42** (2007) 2451-2471
8. **S. Datta**, Philip D. Ray, A. Nath, D. Bhattacharyya, Recognition based separation of HIV-Tat protein using avidin-biotin interaction in modified microfiltration membranes, *Journal of Membrane Science* **280** (2006) 298-310
9. **S. Datta**, P. K. Bhattacharya, N. Verma, Removal of aniline from aqueous solution in a MFR using emulsion liquid membrane, *Journal of Membrane Science* **226** (2003) 185-201

PRESENTATIONS (bold represents presenter)

1. **S. Datta**, Seth W. Snyder, Michael P. Henry, Cindy S. Millard, Yupo J. Lin, Removal of ionic impurities from biomass hydrolysate using EDI, Oral presentation in 2010 Annual Meeting of American Institute of Chemical Engineers, Salt Lake City, UT, USA
2. **S. Datta**, Michael P. Henry, Sabeen F. Ahmad, Seth W. Snyder, Yupo J. Lin, Poster presentation on Removal of Salt Impurities from Glycerol using Electrodeionization Technique, 2009 Annual Meeting of American Institute of Chemical Engineers, Nashville, TN, USA

3. **S. Datta**, Y. J. Lin, M. C. Negri, R. Datta, B. D. Bals, B. E. Dale, S. W. Snyder, Oral presentation on Extraction of Proteins from Corn Dry Mill Co-product by Bio-based Solvents, 2008 Annual Meeting of American Institute of Chemical Engineers, Philadelphia, PA, USA
4. **S. Datta**, D. Bhattacharyya, Oral presentation on Affinity Based Separation of Proteins using Functionalized Microfiltration Membranes, 2007 Annual Meeting of American Institute of Chemical Engineers, Salt Lake City, UT, USA
5. **S. Datta**, D. Bhattacharyya, Poster presentation on Functionalized Microfiltration Membranes for Bio-Catalysis and Bio-Separations, 2007 Annual Meeting of American Institute of Chemical Engineers, Salt Lake City, UT, USA
6. **S. Datta**, A. Nath, D. Bhattacharyya, Separation and purification of a target protein from mixture of proteins using different membrane separation processes in series, Oral presentation in 2007 Annual Meeting of North American Membrane Society (NAMS), Orlando, FL, USA
7. **S. Datta**, D. Bhattacharyya, Development and Applications of Functionalized Microfiltration Membranes, Poster presentation in 2007 Annual Meeting of North American Membrane Society (NAMS), Orlando, FL, USA
8. **S. Datta**, P. D. Ray, A. Nath, D. Bhattacharyya, Selective separation of HIV-Tat protein using functionalized microfiltration membranes, Oral presentation in 2006 Annual Meeting of American Institute of Chemical Engineers (AIChE), San Francisco, CA, USA
9. **S. Datta**, P. D. Ray, A. Nath, D. Bhattacharyya, Selective separation of high value proteins by functionalized microfiltration membranes, Poster presentation in 2006 Annual Meeting of North American Membrane Society (NAMS), Chicago, IL, USA
10. **S. Datta,** P. D. Ray, A. Nath, D. Bhattacharyya, Recognition Based Separation of Proteins Using Avidin-Biotin Interaction in MF Membranes, Oral presentation in 2005 Eastern Regional Chemical Engineering Graduate Symposium organized by University of West Virginia, Morgantown, WV, USA
11. **S. Datta**, P. D. Ray, A. Nath, D. Bhattacharyya, Recognition based separation of proteins using avidin-biotin interaction in modified stacked microfiltration membranes, Oral presentation in 2005 Annual Meeting of North American Membrane Society, Providence, RI, USA
12. **S. Datta**, A. Nath, D. Bhattacharyya, Recognition based separation of biotinylated-protein using surface modified microfiltration membranes, Poster presentation in 2004 Annual Meeting of American Institute of Chemical Engineers, Austin, TX, USA

WORKSHOPS ATTENDED:

1. "Development of leadership skills" in the 2010 Annual Meeting of Council for Chemical Research (CCR), Atlanta, GA, USA
2. "Membranes in Food and Pharmaceutical Industries" in the 2007 Annual Meeting of North American Membrane Society (NAMS), Orlando, FL, USA

REFERENCES:

1. Dr. Seth Snyder, Section Leader, Process Technology Research Group, Energy Systems Division, Argonne National Laboratory, Lemont, IL email: seth@anl.gov
2. Dr. D. Bhattacharyya, Professor, Department of Chemical and Materials Engineering, University of Kentucky, Ph. No.: 859-257-2794, email: db@engr.uky.edu
3. Dr. Yupo Lin, Energy Systems Division, Argonne National Laboratory, Lemont, IL email: yplin@anl.gov
4. Dr. Nishith Verma, Professor, Department of Chemical Engineering, Indian Institute of Technology, Kanpur, India, email: nishith@iitk.ac.in