

PERSONAL DETAILS

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EDUCATION

- PhD Chemistry** 2010-2016
Pennsylvania State University, USA
Thesis: *Designs for Directing Motion at the Nanoscale*
Supervisor: Prof. Ayusman Sen
- MSc. Chemical Research** 2007-2008
Queen Mary, University of London, UK
Grade: Distinction
Thesis: *Investigation of Two-Directional Cyclizations*
Advisor: Prof. Adrian Dobbs
- BSc. Physics** 2004-2007
Presidency College, India
Grade: 3.85
Minor in Chemistry, Maths

WORK EXPERIENCE

- Postdoctoral Researcher** 2016-present
University of Pennsylvania, USA
Advisor: Dean Vijay Kumar and Prof. Kate Stebe
- Designing micro-robots with delivery mechanisms
 - Synthesizing ligands for delivery of signaling molecules to cells
 - Integration of the above system with synthetically engineered bacterial cells
 - Artificial pattern generation in engineered bacterial cells
 - Designing reconfigurable structures at the microscale
- Research Assistant** 2011-2016
Pennsylvania State University, USA
Supervisor: Prof. Ayusman Sen
- Design and optimization of different Nano-patterns using lithography
 - Rotational electrophoresis experiments and surface confinement of Janus particles
 - Using lithographic techniques to make complex patterns and enzyme pumps
 - Analysis of single molecule diffusion and developing enzyme separation techniques
- Research Technician** 2008-2010
Queen Mary, University of London, UK
Supervisor: Prof. Gavin Vinson and Prof. Adrian Dobbs
- Modifications of the structure of steroids Prednisolone, Prednisonone Aldosterone and Corticosterone and synthesis of novel ring analogues of these steroids
 - Testing the above analogues for Glucocorticoid activity using assays
 - Developing new synthetic methodology for synthesis of fused ring structures using two directional radical polymerizations

PUBLICATION LIST

Journal articles

1. S. Das, E.B. Steager, M. A. Hsieh, K. Stebe, V. Kumar. 'Modelling and Ensemble Control of Multiple Catalytic Microrobots', *Journal of Micro-Bio Robotics*, Under Review
2. S. Das, O. Shklyaev, A. Altemose, H. Shum, I. Ortiz-Rivera, L. Valdez, T. E. Mallouk, A. Balazs, A. Sen. 'Harnessing Catalytic Pumps for Directional Delivery of Microparticles in Microchambers', *Nature Communications*, 8, 14384 (2017)
3. S. Das, A. Garg, A. Campbell, J. Howse, D. Velegol, A. Sen, R. Golestanian, S. Ebbens. 'Boundaries can steer active Janus spheres', *Nature Communications*, 6, 8999 (2015)
4. W. Duan, W. Wang, S. Das, V. Yadav, T.E. Mallouk, A. Sen. 'Synthetic Nano- and Micromachines in Analytical Chemistry: Sensing, Migration, Capture, Delivery, and Separation', *Annu. Rev. Anal. Chem.*, 8, 311 (2015)
5. K.K. Dey, S. Das, M. Poyton, S. Sengupta, P. Cremer, P. Butler, A. Sen. 'Chemotactic Separation of Enzymes', *ACS Nano*, 8, 11941 (2014). *Editors Choice*

Peer Reviewed Conference Proceedings

6. S. Das, E. E. Hunter, E. B. Steager, V. Kumar. 'Controlled Delivery of Signaling Molecules using Magnetic Microrobots', in 2018 *International Conference on Manipulation, Automation and Robotics at Small Scales (MARSS)*, Under Review
7. S. Das, E. B. Steager, K. J. Stebe, V. Kumar. 'Simultaneous control of Spherical Microrobots using Catalytic and Magnetic Actuation', in 2017 *International Conference on Manipulation, Automation and Robotics at Small Scales (MARSS)*, IEEE, July 2017

Articles in Preparation

8. S. Das, E. B. Steager, W. Ruder, J. Collins, V. Kumar. 'Microromotors in Synthetic Biology', *Science Robotics*, Invited Review

Patent

K.R. Ryan, S. Das (Ryan), Self Resetting Buoyancy Pump system for Dissimilar Fluids, Patent Pending, Application number 62443752, January 2017

APPLIED GRANTS

Burroughs Wellcome Fund Career Awards in Interfaces of Sciences, *First round passed*

AWARDS AND FELLOWSHIPS

Fellowships

Pennsylvania State University Graduate Student Fellowship	2010-2012
International Science and Engineering Excellence Fellowship	2007-2008

Awards

NextProf. Engineering Workshop Invitee	2017
Department of Chemistry Travel Award, Penn State University	2016
Department of Chemistry Travel Award, Penn State University	2015
Distinction in Thesis, Queen Mary University of London	2008
Award for highest in a minor subject (Chemistry), Presidency University	2007

SEMINARS AND PRESENTATIONS

Invited talks

University of California, Santa Barbara, USA	May 2016
University of Pennsylvania, Philadelphia, USA	Dec 2015

Refereed oral presentations at conferences

ACS Surface and Colloid Symposium, New York City, USA	June 2017
ACS National Meeting, Boston, USA	Sep 2015
ACS Surface and Colloid Symposium, Philadelphia, USA	Jul 2014
ACS National Meeting, San Francisco, USA	Mar 2010
RSC International Lakeland Symposium, Grasmere, UK	Jun 2009
QMUL Symposium on Chemical Biology, London, UK	Sep 2008

TEACHING

Pennsylvania State University

- Mentored graduate students Ms. Alicia Altemose, Ms. Remmi Baker and Mr. Mathew Collins: 2014-2016
- REU Mentor for Mr. Darius Stuvaints in summer 2015
- Teaching Assistant for Chemistry 210 and 212, supervised a class of 20 students, prepared and graded exam papers, demonstrated experiments: Fall 2010, Fall 2011, Spring 2011, Spring 2012

Queen Mary University of London

- Mentored third year undergraduate students Ms. Bich Buithi and Mr. Moshe Nissim Goldmeier for Msci project: 2008-2010
- Postgraduate demonstrator for Department for Chemistry, demonstrating experiments for organic and inorganic chemistry laboratories, Preparing and grading exams, Supervising undergraduates during laboratory hours for class size of 40 students: 2008-2010
- Postgraduate demonstrator for Department for Chemistry, General chemistry recitations: 2008-2010

OUTREACH AND OTHER RESPONSIBILITIES

Program Committee member of MARSS conference	2018
Organizer of Power Hour in Gordon Research Conference for Complex Active and Adaptive Material Systems	2017
Chair of Gordon Research Seminar for Soft Condensed Matter Physics	2017
Referee for Soft Matter, Scientific Reports, RAL, ACS Nano	2015-present
Organizer of weekly Micromotor Meeting, Pennsylvania State University,	2015-2016
Demonstrator of Lithographic techniques to Japanese graduate students and professors at Materials day, Pennsylvania State University	2015
Organizer of Science Leadership Camp at Pennsylvania State University: a day long workshop for local high school students	2014-2015
Host for Graduate Open Day for chemistry department at Pennsylvania State University	2014-2015
Panel member for Women in STEM Mixer	2014
Graduate demonstrator for 'Energy in Nature' demo at local Ferguson Elementary School Science Fair	2013
Demonstrator for Hidden Power Museum Kit to Radio Park Elementary School	2013