Shubhatam Sen
Present and Mailing Address:
Room: C-208, Vidyasagar Hall of Residence, IIT Kharagpur
Kharagpur-721302, India
Email: suvosen.88@gmail.com, shubhatam.iitkgp@gmail.com
Contact Phone: +91-8420115060, +91-9883972599

Objective

To make fundamental and original contribution in the field of Science and Technology through high quality research and to enhance my educational and technical skills yet further.

Academic Background

Examinations	Year	Institution/University	% of marks obtained
PhD (Thesis Submitted)	2011-Present	Indian Institute of Technology Kharagpur	-
M.Sc. (Chemistry)	2009-2011	Jadavpur University, Calcutta	68.0
B.Sc. (Hons.) (Chemistry)	2006-2009	St. Xavier's College, Calcutta University of Calcutta	70.8
Higher Secondary	2006	Kalyani University Experimental High School, West Bengal Council of Higher Secondary Education	82.7
Secondary	2004	Panitor High School, West Bengal Board of Secondary Education	86.9

Research Interest

The research work encompasses the modulation of Human serum albumin (HSA) fibrillation by differently functionalized nanoparticles of various core compositions and physicochemical properties and also the disruption of the preformed amyloid fibrils of HSA by the application of the alternating current electric field.

- Owing to their unique properties, nanoparticles have drawn a lot of attention in biomedical applications. The main focus of the research is to synthesize functionalized nanoparticles that may lead to either enhancement, or inhibition, or depolymerisation in protein fibrillation process and thus may open new routes of controlling self-assembly of proteins leading to possible use in nanomedicine.
- The response of proteins to the external electric field stress with different parameters is another topic of major research interest. Droplet-based microfluidics is used as a platform to experimentally analyze the disruption effects of static and alternating electric field on preformed amyloid fibrils. The aim is to realize the underlying mechanism of the disruption of the fibrillar structure under electric fields with the possible utilization of the strategy in destroying the preformed amyloid deposits.

Publications

- **Shubhatam Sen**, Swagata Dasgupta and Sunando DasGupta, "Does Surface Chirality of Gold nanoparticles Affect Fibrillation of Human Serum Albumin?" ***J. Phys. Chem. C***, In Press, DOI: 0.1021/acs.jpcc.7b05354.
- **Shubhatam Sen**, Monojit Chakraborty, Snigdha Goley, Swagata Dasgupta and Sunando DasGupta, "Fibrillar disruption by AC electric field induced oscillation: A case study with human serum albumin", ***Biophys. Chem.***, 2017, Volume 226, Page 23.
- **Shubhatam Sen**, Suraj Konar, Bodhisatwa Das, Amita Pathak, Santanu Dhara, Swagata Dasgupta and Sunando DasGupta, "Inhibition of fibrillation of human serum albumin through interaction with chitosan-based biocompatible silver nanoparticles", ***RSC Adv.***, 2016, Volume 6, Page 43104.
- **Shubhatam Sen**, Suraj Konar, Amita Pathak, Swagata Dasgupta and Sunando DasGupta, "Effect of Functionalized Magnetic $MnFe_2O_4$ Nanoparticles on Fibrillation of Human Serum Albumin", ***J. Phys. Chem. B***, 2014, Volume 118, Page 11667.
- Suraj Konar**, Shubhatam Sen**, Swagata Dasgupta, Sunando DasGupta and Amita Pathak "Morphological Effect of nanostructures on Fibrillation of Human Serum Albumin", ***Colloids Surf. B***, Under Review.
- Suraj Konar**, Shubhatam Sen**, Swagata Dasgupta, Sunando DasGupta and Amita Pathak "Chiral, Photoluminescent and Biocompatible Carbon Dots: Interaction with HSA and Mitigation of HSA Fibrillation", Manuscript under preparation.
- Monojit Chakraborty, Rahul Anand, Pujari Srinivas Rao, **Shubhatam Sen** and Sunando DasGupta, "Oscillating Nanofluid Droplet for Micro-cooling", ***Sensors Actuators B Chem.***, 2017, Volume 239, Page 562.
- Nitin K Pandey, Subhadeep Mitra, Monojit Chakraborty, Sudeshna Ghosh, **Shubhatam Sen**, Swagata Dasgupta and Sunando DasGupta, "Disruption of Human Serum Albumin Fibrils by a Static Electric Field", ***J. Phys. D: Appl. Phys.***, 2014, Volume 47, Page 305401.
    - Selected as Research Highlight in ***Nature India***, doi:10.1038/nindia.2014.102, Published online 29 July 2014.
- Monami Maiti, Dipali Sadhukhan, Santarupa Thakurta, **Shubhatam Sen**, Ennio Zangrando, Ray J. Butcher, Ramesh C. Deka, Samiran Mitra, "Pseudohalide-Controlled Assemblies of Copper-Schiff Base Complexes with an Encapsulated Sodium Ion: Synthesis, Crystal Structure, and Computational Studies", ***Eur. J. Inorg. Chem.***, Volume 2013, Issue 4, Page 527.

Conferences

- **Shubhatam Sen**, Monojit Chakraborty, Snigdha Goley, Swagata Dasgupta and Sunando DasGupta, "Effect of Oscillating Electric Field on Preformed Human Serum Albumin Fibrils", ***Annual Meeting AIChE 2015***, Salt Lake City, Utah, USA.
- **Shubhatam Sen**, Monojit Chakraborty, Snehasish Mitra, Swagata Dasgupta and Sunando DasGupta, "Oscillating Electric Field Disintegrates Preformed Fibrils Of Human Serum Albumin", ***Indian Chemical Engineering Congress Chemcon 2014***, Chandigarh, India.
- Nitin Kumar Pandey, Subhadeep Mitra, **Shubhatam Sen**, Monojit Chakraborty, Swagata Dasgupta and Sunando DasGupta, "Effect of Electric Field on Aggregated Protein Fibrils", ***Indian Chemical Engineering Congress Chemcon 2012***, Jalandhar, India.

Workshops attended

- Workshop on Materials Characterisation Techniques, Jadavpur University, Kolkata, October 4 and 5, 2016.
- Indo-US Workshop on Fabrionics: Micro & Nano Scale Dynamics, IIT Kharagpur and IIEST Shibpur, August 18 and 19, 2012.

Academic Achievements

- Qualified in CSIR-UGC National Eligibility Test (NET) and Graduate Aptitude Test in Engineering (GATE)
- Awarded fellowship by MHRD, Govt. of India for pursuing doctoral studies
- Awarded full sponsorship by IIT Kharagpur to deliver oral presentation of paper at a conference held in USA
- Awarded several certificates of merit by Indian Science Congress.

Training/Project

- **Training-Project title:** 'Droplet based screening of Amyloid-beta peptide aggregation'
  Duration: 4 Months
  Supervisor: Prof. Sunando DasGupta, Department of Chemical Engineering, Indian Institute of Technology Kharagpur, Kharagpur, India
- **M.Sc. Project-Research topic:** 'Synthesis, structural aspects and DNA binding study of a heterotrinuclear Cu(II)-Na(I)-Cu(II) complex derived from a bicompartmental hexadentate Schiff base ligand'
  Duration: 4 Months
  Supervisor: Prof. Samiran Mitra, Department of Chemistry, Jadavpur University, Calcutta, India

Extra Curricular Activities

- Educational Welfare: running school in a village and providing free tuition to needy students.
- Social welfare: organizing festivals, fests, games, sports.
- Awarded several certificates in Art by 'Sarbabharatiya Sangeet-O-Sanskriti Parishad' recognized by West Bengal State Academy of Fine Arts.
- Reading literature, magazine
- Playing Cricket, Badminton, Carrom etc.

References

1. Prof. Sunando DasGupta
Department of Chemical Engineering
Indian Institute of Technology Kharagpur, India
Email: sunando@che.iitkgp.ernet.in

2. Prof. Swagata Dasgupta
Department of Chemistry
Indian Institute of Technology Kharagpur, India
Email: swagata@chem.iitkgp.ernet.in

Personal Details

Father's Name	: Krishnapada Sen	Mother's Name	: Mita Sen
Date of Birth	: 29.07.1989	Gender	: Male
Nationality	: Indian	Category	: General

Declaration

I hereby solemnly declare that all the statements made above are true and correct to the best of my knowledge and belief.

Date: 09.08.2017