

Sujit Sen, PhD

Associate Professor

Catalysis Research Lab., Department of Chemical Engineering &
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Employment History

02/2020 –Till date	Associate Professor	Department of Chemical Engineering, National Institute of Technology Rourkela, Odisha, India	
07/2011 – 01/2020	Assistant Professor	Department of Chemical Engineering, National Institute of Technology Rourkela, Odisha, India.	
04/2011 – 06/2011	Lecturer	Department of Chemical Engineering, Birla Institute of Technology & Science, Pilani, Rajasthan, India.	

Education

2007 – 2011	Ph.D. in Chemical Engg.	Department of Chemical Engineering Indian Institute of Technology Kharagpur India Specialization: Multiphase Reaction	
2001 –2003	M.Tech. in Chemical Engg.	Department of Chemical Engineering. University College of Science, Technology & Agriculture University of Calcutta, India Specialization: Petrochemicals & Petroleum Refinery Engg.	
1998 – 2001	B.Tech. in Chemical Engg.	Department of Chemical Engineering. University College of Science, Technology & Agriculture University of Calcutta, India	
1995-1998	B.Sc. in Chemistry (Hons.)	Bidhannagar College, University of Calcutta, India	






Research Experience

02/2007 – 01/2009	Senior Research Fellow (CSIR)	Department of Chemical Engineering Indian Institute of Technology Kharagpur India	
06/2017 – 08/2017	Project Assistant-II (DST)	Ceramic Membrane Division CSIR-Central Glass of Ceramic Research Institute, Jadavpur, India	 
06/2016 – 01/2017	Senior Research Fellow (MHRD)	Department of Chemical Engineering Indian Institute of Technology Kharagpur India	

Area of Interest/expertise

Chemical Reaction Engineering	➤ Heterogeneous Catalysis – Multiphase reactions, Green catalysis: Phase Transfer Catalysis, Ionic Liquid Catalysis, Reagentless Synthesis
Gas capture and utilization.	➤ Capture and conversion of refinery gases; Carbon capture and conversion
Waste to wealth	➤ Industrial solid waste to Zeolite and Geopolymer in micro and meso-scale for Water treatment and Air separation. ➤ Development of nanoadsorbent from inorganic waste and biomass
Water Research	➤ Advanced oxidation process in wastewater treatment; Photocatalysis
Sustainable Organic Synthesis	➤ Fine Chemicals and Polymer Synthesis from renewable resources


Grants

Year	Role	Title	Scheme	Sponsor	Project Value (Lacs)
2023-26	PI	Remediation of microplastics from water resources with surface modified nanozeolite Y derived from aluminosilicate industrial wastes	Core Research Grant (CRG)	 SERB-DST	27.0
2022 – 23	PI	Development of Low-cost No-Lithium Zeolite Adsorbents for Fabricated PSA-based Oxygen Concentrator	COVID Special Call	 SERB-DST	25.05
2022-24	Co-PI	Development of Hybrid Polyhydroxy Urethanes for Aerospace Applications	Yukti-Sanchita 2021		24.00
2019-23	PI	Zeolite-based Low-cost Hybrid Membrane Photo-Bioreactor System for Treating and Recycling of High Strength Industrial Wastewater	IMPRINT 2	 DST-MHRD	88.21
2013-16	PI	Two stage synthesis of aromatic thioethers using hydrogen sulfide and reusable phase transfer catalyst	Fast-Track	 SERB-DST	24.62

Student Mentoring

Role	Ph.D.	M.Tech. (Research)	M.Tech.	B.Tech.-M.Tech. Dual	Summer Intern
Supervisor	Completed: 4 Ongoing: 5	Completed: 4	Completed: 13 Ongoing: 1	Completed: 8 Ongoing: 1	Completed: 7

Collaborators

	International	Prof. Sohrab Rohani	Professor of Chemical Engineering Department of Chemical and Biochemical Engineering Western University, Canada	
		Prof. Ali Abbas	Associate Professor of Chemical Engineering School of Chemical and Biomolecular Engineering University of Sydney, Australia	
	National	Prof. Binay K Dutta	Ex-Professor, IIT Kharagpur and Calcutta University Ex-Chairman, West Bengal Pollution Control Board	
		Prof. Anand V Patwardhan	Professor, ICT Mumbai Dy. Director, IOC-ICT Bhubaneswar, Odisha	
		Prof. Papita Das	Professor, Jadavpur University	
		Mr. Jiten Patel	CEO, Twin Engineers Vadodara, India	

Research Publications

Journal articles

1. Madhumita Manna, **Sujit Sen**. "Tuning crystallization for controlled morphology of Zeolite A by a novel eco-friendly sonochemical precursor-less method", *Mater. Chem. Phys.*, 2023 (under revision)
2. Madhumita Manna, Binay K. Dutta, **Sujit Sen**. "A hybrid ZA@ZnO_{1-x} nanocomposite-based tubular membrane process for enhanced degradation of organics: a bench scale study for Bismarck brown R effluent", *J. Environ. Chem. Eng.*, 2023, 11 (5), 110321 DOI: [10.1016/j.jece.2023.110321](https://doi.org/10.1016/j.jece.2023.110321) (I.F. 7.968)
3. Madhumita Manna, **Sujit Sen**. "A novel oxygen-deficient core-shell ZA@ZnO_{1-x} nanocomposite for enhanced degradation of multiple polyaromatic hydrocarbons", *Appl. Surf. Sci.* 2023, 630, 157523. DOI: [10.1016/j.apsusc.2023.157523](https://doi.org/10.1016/j.apsusc.2023.157523) (I.F. 7.392)

4. Manisha Maharana, **Sujit Sen**. Synthesis and Characterisation of Transition Metal Sulphide loaded Fly Ash based mesoporous EU-12 Photocatalysts for degradation of Rhodamine B. *Environ Sci Pollut Res.*, 2022 DOI: 10.1007/s11356-022-21093-1. (I.F. 5.190).
5. Madhumita Manna, **Sujit Sen**. Advanced oxidation process: a sustainable technology for treating refractory organic compounds present in industrial wastewater. *Environ Sci Pollut Res.*, 2022 DOI: 10.1007/s11356-022-19435-0. (I.F. 5.190).
6. Yash Shah, Manisha Maharana, **Sujit Sen**, Peltophorum pterocarpum leaf extract mediated green synthesis of novel iron oxide particles for application in photocatalytic and catalytic removal of organic pollutants, *Biomass Conv. Bioref.* (2022). <https://doi.org/10.1007/s13399-021-02189-z>. (I.F. 4.050).
7. Manisha Maharana, **Sujit Sen**. Industrial Solid Waste Based EU-12 Nanozeolite: Synthesis and Characterisation. *Waste Biomass Valor*, 2021. <https://doi.org/10.1007/s12649-021-01553-4> (I.F. 3.449).
8. Sanjeet S. Patil, Bunushree Behera, **Sujit Sen**, P. Balasubramanian, "Performance evaluation of bubble column photobioreactor along with CFD simulations for microalgal cultivation using human urine", *J. Environ. Chem. Eng.*, 2021, 9(1), 104615 DOI: [10.1016/j.jece.2020.104615](https://doi.org/10.1016/j.jece.2020.104615) (I.F. 7.968)
9. Sivamani Sivalingam, **Sujit Sen**, "Rice husk ash derived nanocrystalline ZSM-5 for highly efficient removal of a toxic textile dye", *J. Mater. Res.*, 2020, 9 (6),14853-14864. DOI: [10.1016/j.jece.2020.104615](https://doi.org/10.1016/j.jece.2020.104615) (I.F. 6.267)
10. Sivamani Sivalingam, **Sujit Sen**, "Sono-assisted adsorption of As (V) from water by rice husk ash derived iron modified mesoporous zeolite Y: A Cradle to cradle solution to a problematic solid waste materials", *Ind. Eng. Chem. Res.* 2019, 58, 14073-14087. DOI: [10.1021/acs.iecr.9b01785](https://doi.org/10.1021/acs.iecr.9b01785) (I.F. 4.326).
11. Sivamani Sivalingam, **Sujit Sen**, "Efficient removal of textile dye using nanosized fly ash derived Zeolite-X: Kinetics and process optimization study", *J. Taiwan. Inst. Chem. Eng.* 2019, 96, 305-314. DOI: [10.1016/j.jtice.2018.10.032](https://doi.org/10.1016/j.jtice.2018.10.032) (I.F. 5.477)
12. Sivamani Sivalingam, **Sujit Sen**, "Valorization of coal fly ash into nanozeolite by sonication assisted hydrothermal method", *J Environ Manage.* 2019, 235, 145-151. DOI: [10.1016/j.jenvman.2019.01.042](https://doi.org/10.1016/j.jenvman.2019.01.042) (I.F. 8.910).
13. Sivamani Sivalingam, Taitinaidu Kella, Manisha Maharana, **Sujit Sen**, "Efficient sono-sorptive elimination of methylene blue by fly ash-derived nano-zeolite X: Process optimization, isotherm and kinetic studies", *J Clean. Prod.* 2019, 219, 1241-1254. DOI: [10.1016/j.jclepro.2018.10.200](https://doi.org/10.1016/j.jclepro.2018.10.200) (I.F. 11.072)
14. Sivamani Sivalingam, **Sujit Sen**, "An ultra-fast non-conventional waste management protocol to recycle of industrial fly ash into zeolite X", *Environ Sci Pollut Res Int*, 2019, 26(34), 34693-34701. DOI: [10.1007/s11356-018-3664-9](https://doi.org/10.1007/s11356-018-3664-9) (I.F. 5.190).
15. Sivamani Sivalingam, **Sujit Sen**, "Swift sono-hydrothermal synthesis of pure NaX nanocrystals with improved sorption capacity from industrial resources", *Appl. Surf. Sci.* 2019, 463, 190 – 196. [10.1016/j.apsusc.2018.08.019](https://doi.org/10.1016/j.apsusc.2018.08.019) (I.F. 7.392)
16. Pratik Mishra, Saroj Kumari, **Sujit Sen**, "Kinetic Modeling on Ionic Liquid Mediated Bi-liquid Phase Transfer Catalyzed Synthesis of bis-(2-Phenylethyl) Sulfide with H₂S-rich Methyl-diethanolamine", *J Mol Liq.* 2018, 271, 580-588. DOI: [10.1016/j.molliq.2018.09.038](https://doi.org/10.1016/j.molliq.2018.09.038) (I.F. 6.633)
17. Sivamani Sivalingam, **Sujit Sen**, "Rapid ultrasound assisted hydrothermal synthesis of highly pure nanozeolite X from Fly ash for efficient treatment of industrial effluent", *Chemosphere*, 2018, 210, 816-823. DOI: [10.1016/j.chemosphere.2018.07.091](https://doi.org/10.1016/j.chemosphere.2018.07.091) (I.F. 8.943)
18. Sivamani Sivalingam, **Sujit Sen**, "Optimization of synthesis parameters and characterization of coal fly ash derived microporous zeolite X", *Appl. Surf. Sci.* 2018, 455, 903-910. DOI: [10.1016/j.apsusc.2018.05.222](https://doi.org/10.1016/j.apsusc.2018.05.222) (I.F. 7.392)
19. Ujjal Mondal, **Sujit Sen**, "Highly Selective Room Temperature Monoreduction of Dinitro-arenes by Hydrogen Sulfide under Liquid-Liquid Biphasic Catalysis", *Int J Chem Kinet.* 2018, 50(1), 15-30. DOI: [10.1002/kin.21136](https://doi.org/10.1002/kin.21136) (I.F. 1.502)
20. Ujjal Mondal, **Sujit Sen**, "Multivariate Analysis in Selective Nitroacetophenone Conversion by Hydrogen Sulfide under Phase Transfer Catalysis", *Org. Process Res. Dev.* 2017, 21 (1), 23-30. DOI: [10.1021/acs.oprd.6b00287](https://doi.org/10.1021/acs.oprd.6b00287) (I.F. 3.858)

21. **Sujit Sen**, Ujjal Mondal, Gaurav Singh, "Dual Optimization in Phase Transfer Catalyzed Synthesis of Dibenzyl Sulfide using Response Surface Methodology (RSM)", *Org. Process Res. Dev.* 2016, 20 (10), 1765–1773. DOI: [10.1021/acs.oprd.6b00243](https://doi.org/10.1021/acs.oprd.6b00243) (I.F. 3.858)
22. Preeti Jha, Ujjal Mondal, Devipriya Gogoi, Gaurav Singh, **Sujit Sen**, "Novelties of selective triphasic synthesis of bis-(p-chlorobenzyl) sulfide using hydrogen sulfide and reusable phase transfer catalyst", *J Mol. Catal. A: Chem.* 2016, 418, 30-40. DOI: [10.1016/j.molcata.2016.03.030](https://doi.org/10.1016/j.molcata.2016.03.030) (I.F. 5.089)
23. Gaurav Singh, Priya G. Nakade, Dorothy Chetia, Preeti Jha, Ujjal Mondal, Saroj Kumari, **Sujit Sen**, "Kinetics and mechanism of phase transfer catalyzed synthesis of aromatic thioethers by H₂S-rich Methyl-diethanolamine", *J Ind. Eng. Chem.* 2016, 37, 190-197. DOI: [10.1016/j.jiec.2016.03.022](https://doi.org/10.1016/j.jiec.2016.03.022) (I.F. 6.76)
24. Gaurav Singh, Priya G. Nakade, Pratik Mishra, Preeti Jha, **Sujit Sen**, Ujjal Mondal, "Kinetic investigation on liquid–liquid–solid phase transfer catalyzed synthesis of dibenzyl disulfide with H₂S-laden monoethanolamine", *J Mol. Catal. A: Chem.* 2016, 411, 78–86. DOI: [10.1016/j.molcata.2015.10.013](https://doi.org/10.1016/j.molcata.2015.10.013) (I.F. 5.089)
25. Ujjal Mondal, Aslam Puthankot, **Sujit Sen**, Gaurav Singh, "Novelties of triphasic phase transfer catalysed Zinin reduction of nitrochlorobenzene by H₂S-laden monoethanolamine", *RSC Adv.*, 2016, 6, 23666-23676. DOI: [10.1039/C5RA26856G](https://doi.org/10.1039/C5RA26856G) (I.F. 4.036)
26. Ujjal Mondal, **Sujit Sen** and Gaurav Singh, "Advances in hydrogen sulphide utilisation: phase transfer catalysed selective reduction of nitronaphthalene", *RSC Adv.*, 2015, 5, 102942-102952. DOI: [10.1039/C5RA19884D](https://doi.org/10.1039/C5RA19884D) (I.F. 4.036)
27. **Sujit Sen**, Narayan C. Pradhan and Anand V. Patwardhan, "Kinetics of Reaction of Benzyl Chloride with H₂S-rich Aqueous Monoethanolamine: Selective Synthesis of Dibenzyl Sulfide under Liquid–Liquid Phase-Transfer Catalysis", *Asia-Pac. J. Chem. Eng.* 2011, 6 (2), 257-265. DOI: [10.1002/apj.430](https://doi.org/10.1002/apj.430) (I.F. 1.777)
28. Sunil K. Maity, **Sujit Sen** and Narayan C. Pradhan, "A New Mechanistic Model for Liquid–Liquid Phase Transfer Catalysis: Reaction of Benzyl Chloride with Aqueous Ammonium Sulfide", *Chem. Eng. Sc.*, 2009, 64, 4365-4374. DOI: [10.1016/j.ces.2009.07.004](https://doi.org/10.1016/j.ces.2009.07.004) (I.F. 4.889)
29. **Sujit Sen**, Sunil K. Maity, Narayan C. Pradhan and Anand V. Patwardhan, "Utilization of Hydrogen Sulfide for the Synthesis of Dibenzyl Sulfide: Effect of Process Parameters on Conversion and Selectivity", *Int. J. chem. Sci.* 2007, 5 (4), 1569-1578.



Patents

1. **Sujit Sen**, and Madhumita Manna, "A Process for Development of Zeolite A from Mixed Industrial Solid Wastes", 202331016260, IP India, 24/03/2023. (Published).
2. **Sujit Sen**, and Madhumita Manna, "ZA@ZnO_{1-x} Nanocomposite Photocatalyst-Coated Ceramic Membrane-Based Hybrid Process for Industrial Wastewater Treatment", 202331030218, IP India, 05/05/2023. (Published).
3. **Sujit Sen**, and Deeptimayee Pal, "A Process For Making Faujasite Zeolite using Dolochar from Sponge Iron Industry", 202331037638, IP India, 31/05/2023. (Published).



Book/Book chapters

1. Manna, M. and **Sen, S.** (2021). Sustainable Management of Waste: Present Challenges and Future Planning, In Nanda Gopal Sahoo (Eds.), Waste Management: Strategies, Challenges and Future Directions, Waste and Waste Management, Nova Science Publishers, DOI: 10.52305/SBRJ2174
2. Maharana M., **Sen, S.** (2021). Fly-Ash Derived Zeolite as a Versatile Novel Material in Civil Engineering: An Overview. In: Pal S., Roy D., Sinha S.K. (eds) Processing and Characterization of Materials. Springer Proceedings in Materials, vol 13. Springer, Singapore. DOI: 10.1007/978-981-16-3937-1_26
3. Sardar, M., Maharana, M., Manna, M. and **Sen, S.** (2020). 2D Zeolites. In Inamuddin, Boddula, R., Ahamed, M.I., Asiri, A.M. (Eds.), *Layered 2D Advanced Materials and Their Allied Applications*. Wiley. DOI: [10.1002/9781119655190.ch9](https://doi.org/10.1002/9781119655190.ch9)

4. Maharana, M., Manna, M., Sardar, M., **S. Sen** (2021). Heavy Metal removal by Low Cost Adsorbents. *In* Inamuddin, Ahamed, M.I., Lichtfouse, E., Asiri, A.M. (Eds.), *Green Adsorbents to Remove Metals, Dyes and Boron from Polluted Water*. Vol. 49. Springer, Cham. DOI: 10.1007/978-3-030-47400-3_10.
5. Sardar, M., Manna, M., Maharana, M. and **Sen, S.** (2021). Remediation of Dyes from Industrial Wastewater Using Low-Cost Adsorbents, *In* Inamuddin, Ahamed, M.I., Lichtfouse, E., Asiri, A.M. (Eds.), *Green Adsorbents to Remove Metals, Dyes and Boron from Polluted Water*. Vol 49. Springer, Cham. DOI: 10.1007/978-3-030-47400-3_15.
6. Nakade, P. G., Singh, G., **Sen, S.**, Inamuddin (2020). Tri-Liquid Phase Transfer Catalysis: A Green Reaction Technology. *In* Inamuddin (eds) *Green Sustainable Process for Chemical and Environmental Engineering and Science: Sustainable Organic Synthesis*, 1st Edition. Pp-453-480. Elsevier. DOI: 10.1016/B978-0-12-819539-0.00017-8.

Conference proceedings

1. Madhumita Manna, **Sujit Sen**, “Advanced Oxidation Process- A Sustainable Technology For Treating Refractory Organic Compounds Present In Industrial Wastewater”, Virtual International Conference on Advances in Sustainable Research for Energy and Environmental Management (**ASREEM-2021**). Sardar Vallabhbhai National Institute of Technology, Surat (India), August 06 – 08, 2021.
2. Manisha Maharana, **Sujit Sen**, “A mini-review on Conversion of Red mud to Zeolite”, International Chemical Engineering Conference (ICheEC 2021), Dr. B R Ambedkar National Institute of Technology, Jalandhar, September 16-19, 2021.
3. Manisha Maharana, Sujit Sen, “Magnetic Zeolite: A Green Reusable Adsorbent in Wastewater Treatment”, Sustainable Technologies in Wastewater Treatment & Desalination (STWTD-2020), NIT Calicut, December 18-19, 2020.
4. Manisha Maharana, **Sujit Sen**, “Fly-ash derived Zeolite as a versatile novel material in Civil Engineering”, Conference on Processing and Characterization of Materials (CPCM-2020), NIT Rourkela, December 18-20, 2020.
5. Manisha Maharana, Janani J, **Sujit Sen**, “Utilization of Coal Fly Ash derived Magnetic Geopolymers as Reusable Catalyst in Biodiesel Synthesis from Non-edible oil”, Indian Chemical Engineering Congress (**CHEMCON-2019**), IICHE, IIT Delhi, December 16-19, 2019.
6. Sivamani S, **Sujit Sen**, “Rice Husk Ash Derived Nanocrystalline Zeolite for Water Research: Waste Disposal to Resource Recovery” **RSW-2017**, NIT Rourkela, Odisha, India. February 21-23, 2017.
7. Sivamani S, **Sujit Sen**, “Resource Recovery of Waste Fly-ash in Synthesis of Zeolite”, Indian Chemical Engineering Congress (**CHEMCON-2016**), Anna University, Chennai, India, **December 27-30, 2016**.
8. Sivamani S, **Sujit Sen**, Utilization of waste fly ash for the synthesis of potential catalyst, **STCE-2016**, The Institution of Engineers (India), NIT Rourkela, Odisha, India. February 13-14, 2016.
9. Sivamani S, **Sujit Sen**, “Zeolite ZSM-5 formation by hydrothermal alkali fusion of coal fly ash”, Indian Chemical Engineering Congress (**CHEMCON-2015**), IIT-Guwahati, India, **December 27-30, 2015**.
10. Sivamani S, and Sujit Sen, Synthesis and characterization of zeolite X and its application on alkylation reaction, **PETRAMET’ 15**, AMET University Chennai, India, April 21-22, 2015.
11. Sivamani S, **Sujit Sen**, “Solid Waste Converted into Catalyst and Its Application in Heterogeneous Catalysis”, International Conference on New Frontiers in Chemical, Energy & Environmental Engineering (**INCEEE**), Warangal, March 20-21, 2015, ISBN 978-81-928314-1.
12. Gaurav Singh, Priya G. Nakade, Preeti Jha, Devipriya Gogoi, **Sujit Sen**, “Parametric Studies in Synthesis Aromatic Thioethers using Hydrogen Sulfide Under Liquid Liquid Phase Transfer Catalyst”, Indian Chemical Engineering Congress (**CHEMCON-2014**), Chandigarh, Punjab, India, December 27-30, 2014.
13. Ujjal Mondal, **Sujit Sen**, Gaurav Singh, Priya G. Nakade, “H₂S-Rich Alkanolamine: A New Reagent For Zinnin Reduction”, Indian Chemical Engineering Congress (**CHEMCON-2013**), Matunga, Mumbai, India, December 27-30, 2013.
14. Gaurav Singh, **Sujit Sen**, Ujjal Mondal, Priya G. Nakade, “Synthesis of Symmetrical Thioethers from Hydrogen Sulfide”, Indian Chemical Engineering Congress (**CHEMCON-2013**), Matunga, Mumbai, India, December 27-30, 2013.










15. Meenakshee Pandey, **Sujit Sen**, "Enzyme-Catalysed Hydrolysis of non-conventional oil resources:A Review", Indian Chemical Engineering Congress (**CHEMCON-2012**), Jalandhar, Punjab, India, December 27-30, 2012.
16. S. Nagarjun, **Sujit Sen**, Srinivas Thadela, "Room Temperature Synthesis of Dibenzyl Sulfide using PEG as a Green Catalyst", Indian Chemical Engineering Congress (**CHEMCON-2012**), Jalandhar, Punjab, India, December 27-30, 2012.
17. Srinivas Thadela, **Sujit Sen**, S. Nagarjun, "Green Route of Synthesis of Dibenzyl Thioether using Hydrogen sulfide", Indian Chemical Engineering Congress (**CHEMCON-2012**), Jalandhar, Punjab, India, December 27-30, 2012.
18. Gaurav Singh, Priya G. Nakade, **Sujit Sen**, "Green Routes of Synthesis of Organic Sulphides: A Review", Indian Chemical Engineering Congress (**CHEMCON-2012**), Jalandhar, Punjab, India, December 27-30, 2012.
19. **Sujit Sen**. "Selective reduction of Chloronitrobenzene using H₂S-rich Monoethanolamine: Kinetic studies and optimization", 243rd ACS National Meeting & Exposition, San Diego, California, **March 25-29, 2012**.
20. **Sujit Sen**. "Selective Synthesis of Dibenzyl Thioether under Solvent free condition using Hydrogen Sulfide", 243rd ACS National Meeting & Exposition, San Diego, California, **March 25-29, 2012**.
21. **Sujit Sen**, Narayan C. Pradhan and Anand V. Patwardhan, "Optimization of Benzyl Chloride Conversion in Liquid-Liquid Phase Transfer Catalyzed Reaction with H₂S-Rich Monoethanolamine", **International Conference on Chemistry and Chemical Process – ICCCP 2011**, Bangkok, Thailand, **May 7-9, 2011**.
22. **Sujit Sen**, Narayan C. Pradhan and Anand V. Patwardhan, "Reactions of Benzyl Chloride with H₂S-rich Ethanolamine under Phase Transfer Catalysis: Optimization of Product Selectivity by Response Surface Methodology", **Chemical Engineering Congress (CHEMCON, International conference)-2010**, Annamalainagar, India, **December 27-29, 2010**.
23. **Sujit Sen** and Narayan C. Pradhan, "Intensification and Selectivities in Liquid-Liquid Phase-Transfer-Catalyzed Synthesis of Dibenzyl sulfide using Hydrogen Sulfide", **ChemBiotech'09-10** (International Conference), National University of Singapore, Singapore (NUS), **January 28-29, 2010**.
24. **Sujit Sen**, Narayan C. Pradhan and Anand V. Patwardhan, "Role of Phase Transfer Catalyst in Biphasic Liquid-Liquid Reactions of Benzyl Chloride and Aqueous Ammonium Sulfide", Chemical Engineering Congress (**CHEMCON, International Conference**), Visakhapatnam, India, **December 27-30, 2009**.
25. **Sujit Sen**, Narayan C. Pradhan and Anand V. Patwardhan, "Solvent-free Selective Synthesis of Dibenzyl Sulfide using Hydrogen Sulfide: Role of Phase Transfer Catalyst", **ChemBiotech'08** (Regional Conference), National University of Singapore (NUS), Singapore, **December 19-20, 2008**.
26. **Sujit Sen**, Narayan C. Pradhan and Anand V. Patwardhan, "Kinetics of Reactions of Benzyl Chloride with H₂S-rich Aqueous Monoethanolamine under Liquid-liquid Phase Transfer Catalysis", Chemical Engineering Congress (**CHEMCON, International Conference**), Kolkata, India, **December 27- 30, 2007**.
27. **Sujit Sen**, Sunil K. Maity, Narayan C. Pradhan and Anand V. Patwardhan, "Utilization of Hydrogen Sulfide for the Synthesis of Dibenzyl Sulfide: Effect of Process Parameters on Conversion and Selectivity", National Conference on Frontiers in Chemical Engineering (**NCFCE**), IIT-Guwahati, India, **December 12-14, 2007**.

Membership in Professional Societies

- | | |
|--|-------------|
| 1. Member, American Institute of Chemical Engineers (AIChE)
Membership No. 009900312848 | 2016 |
| 2. Member, American Chemical Society (ACS)
Membership No.30225127 | 2012 |
| Senior Member, Asia-Pacific Chemical, Biological & Environmental Engineering Society (APCBEEES) , Membership No. 100641 | 2013 |
| 3. Associate Member, Institution of Engineers of India (IEI)
Membership No. AM145724-4 | 2013 |
| 4. Life Member, Indian Institute of Chemical Engineers (IICChE)
Membership No. LM-39328 | 2011 |

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| 5. | Member, International Association of Engineers (IAENG)
Membership No. 111742 | 2014 |
| 6. | Senior Member, International Association of Computer Science and Information Technology (IACSIT), Membership No. 80347093 | 2015 |
| 7. | Member, Universal Association of Civil, Structural And Environmental Engineers (UACSE), Institute of Research Engineers and Doctors
Membership ID: SNM10100058006 | 2016 |

Award, Fellowship & Achievements

- | | |
|------|--|
| 2019 |  2019 Class of Influential Researchers, Industrial & Engineering Chemistry Research (ACS), USA. |
| |  Recipient of IMPRINT-2, a high-value multi-institutional grant, India |
| 2013 |  Fast Track for Young Scientist Award from Science & Engineering Research Board, DST, India |
| 2009 |  Doctoral Fellowship from Ministry of Human Research and Development (MHRD), India |
| 2007 |  Senior Research Fellowship from CSIR, India-IIT Kharagpur, India |
| 2005 |  Senior Research Fellowship from DST, India-CSIR-CGCRI, India |
| 2004 |  Senior Research Fellowship from MHRD, India-IIT Kharagpur, India |
| 2002 | |
| 2001 |  GATE Fellowship |
| 1995 |  College Topper in B.Sc. in Chemistry (Honors), State Rank-21 |

Support Work

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|---------------|---|---|
| Institutional | 2022-23 |  Member of Intellectual Property Innovation Centre, NIT Rourkela |
| | 2021-23 |  Member of Central Time Table committee, NIT Rourkela |
| | 2017-20 |  Member of Curriculum, Ranking and Accreditation Committee |
| | 2016-18 |  Member of Central Curriculum Development Committee |
| | 2016-17 |  Member of Central Library Advisory Committee, NIT Rourkela |
| | 2016-till now |  Faculty Advisor of AIChE Student Chapter, NIT Rourkela |
| | 2012-16 |  Faculty Advisor of Vortex Club, Student Activity Centre (SAC) |
| | 2012-15 |  Assistant Warden, M.V. Hall of Residence, NIT Rourkela |
| | 2012-16 |  Member of Website Development Committee |
| Departmental | 2021-23 |  PIC-Department Website Committee |
| | |  PIC-Research Admission |
| | 2021-22 |  Member of DAPOC Committee |
| | |  Member of Purchase Committee |
| | 2018-19 |  Professor-in-charge of Department Information |
| | |  Member of Department Accreditation Committee |
| | 2014-now |  Member of Doctoral Research Committee (DRC) |
| | 2014-18 |  Professor-in-Charge of Department Infrastructure |
| 2013-17 |  Faculty Advisor of 2013-2017 Batch of UG Chemical Engineering and Food Processing Engineering | |
| 2009-11 |  Representative of Research Scholars at Department of Chemical Engineering, IIT Kharagpur | |



Academic Development



Event Organizer

1. **Coordinator** for SERB, DST-sponsored High-end Karyashala Workshop on “Advanced Oxidation processes for Environmental Remediation (AOPER2022)”, Department of Chemical Engineering, National Institute of Technology Rourkela, Odisha, India, **January 4-10, 2023**.
2. **Coordinator** for SERB, DST-sponsored High-end Karyashala Workshop on “Advances in Carbon Dioxide Capture and Utilization for Sustainable Climate”, Department of Chemical Engineering, National Institute of Technology Rourkela, Odisha, India, **July 4-10, 2022**.
3. **Coordinator** for “Online Workshop cum FDP programme on Technologies for Waste to Energy & Resources (*eFDP-TWER-2020*)”, Jointly organized by Department of Chemical Engineering & Department of Biotechnology and Medical Engineering, National Institute of Technology Rourkela, Odisha, India, **December 9 – 13, 2020**.
4. **Convener** for “*Students’ Chemical Engineering Congress (SCHEMCON) 2017*”, Department of Chemical Engineering, National Institute of Technology Rourkela, Odisha, India, **October 7 – 8, 2017**.
5. **Convener** for “*International Conference on Frontiers in Chemical Engineering (ICFCE-2013)*”, Department of Chemical Engineering, National Institute of Technology Rourkela, Odisha, India, **December 9 – 11, 2013**.
6. **Convener** for “*Golden Jubilee Chemical Engineers Alumni Meet-2014*”, Department of Chemical Engineering, National Institute of Technology Rourkela, Odisha, India, **December 24 – 25, 2013**.
7. **Convener** for National Conference in “*Recent Advances in Chemical & Environmental Engineering*”, Department of Chemical Engineering, National Institute of Technology Rourkela, Odisha, India, **January 20 – 21, 2012**.



Course Developer

1. **Green Technology and Engineering (PG)**
2. **Research Methodology (PG)**
3. **Resource Recovery from Waste (PG)**
4. **Polymer Technology (UG)**

Laboratory Developer

1. **Catalysis Research Laboratory** (Functional): The laboratory is meant for development of various types of catalysts such as phase transfer catalysts, Solid zeolite catalysts etc. The laboratory has equipment like glass stirred reactors, packed bed reactors, Ultrasonic bath etc.
2. **Chromatography Laboratory** (Functional): The laboratory is developed to analyze organic samples using GC-FID, GC/MS, UV-VIS spectroscopy etc.
3. **Water Testing Laboratory** (Functional): The laboratory is developed to analyze water quality in terms of COD, BOD, Turbidity, TSS, TOC, DO, pH, TDS, organic contaminant analysis etc. of different water types such as surface water, ground water, wastewater etc.

Academic Outreach

1. Invited talk on “**Microplastics in Water/Air/Soil: Challenges in Quantification and Remediation**” for “**National Workshop on Technological Emergence for Clean Water and Air**” (**TECWA-2023**), NIT Rourkela, May 29 - June 2, 2023
2. Invited talk on “**Nanozeolites from industrial resources: A Cradle to cradle solution to a problematic solid waste materials**” (Faculty Development program on **Recent Advances in Nanotechnology, Catalysis & Bio-Chemical Engineering**. (**RANCBE - 2020**), VSSUT Burla, Odisha, September 16-20, 2020.
3. **Student Chapter Coordinator** for **Indian Institute of Chemical Engineers (IChE)** Regional Centre, Rourkela since **07/2016 – 06/2019**.
4. **Joint Secretary** for **Indian Institute of Chemical Engineers (IChE)**, Rourkela Regional Centre Since 07/2019.
5. **Department Chair & Faculty Advisor** for **American Institute of Chemical Engineers (AIChE)** Student Chapter, Rourkela since **07/2016 – till date**.
6. **Reviewer** of several DST Early Career Research Proposals.

7. **Reviewer** of many renowned international journals like Catalysis Communication (Elsevier), Organic Process Research and Development (ACS), ACS Sustainable Chemistry and Engineering, Journal of Hazardous Material (Elsevier), Energy & Fuels (ACS) etc.
8. **Invited Talk** on “Fly-Ash Management in India: From Waste Disposal to Resource Recovery” during TEQIP-II sponsored short term course on “Industrial and Municipal Waste Management (I&MWM-2017), held at NIT Rourkela, January 24 – 25, 2017.
9. **Lecture** on “Process Plant Safety and Environment” at Jindal Steel, Vijayanagar Works, Toranagallu, Karnataka, June 4-5, 2011.

Participation

1. Faculty Development programme In “*Pedagogy and E-Learning Technology*”, Conducted by Electronics and Communication Department, NIT Rourkela, **July 1-5, 2014**.
2. Academic Training “*GC/MS: Fundamental and Application*” at Agilent Central Facility Laboratory, Bangalore, India, **June 20-21, 2013**.
3. Industry-Academia Workshop on “*Simulation & Modeling in the Process Industry*”, conducted by Petroleum Federation of India (PETROFED), Lovraj Kumar Memorial Trust (LKMT) in association with Indian Oil Corporation Ltd., at IMA, Haldia Refinery, West Bengal, India, **July 25 – 28, 2012**.
4. Workshop on “*Data Analysis and Modeling*” organized on occasion of the 1st National Conference of Research Scholars and Young Scientist in Chemical Engineering (**CRSYS, 2004**), IIT- Kharagpur, India, **September 25-27, 2004**.

Sujit Sen