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RESEARCH INTEREST

- Desalination and wastewater treatment by membranes
- Environmental nanotechnology
- Climate change mitigation and adaptation
- Pollution control technologies
- Waste to value-added products
- Biofouling control by nanomaterials
- Physico-chemical & biological treatment processes
- Environmental quantum chemical modeling
- Fate & transport of organic and emerging contaminants in the environment

WORK EXPERIENCE

April 2022- till date	**Associate Professor**
Dec 2018- April 2022	**Assistant Professor** Department of Environmental Science and Engineering Indian Institute of Technology Bombay, Powai Mumbai-400076
Oct 2018- Dec 2018	**Assistant Professor** Department of Civil and Environmental Engineering Indian Institute of Technology Tirupati Andhra Pradesh-508517, India
March 2016- Oct 2018	**Post-Doctoral Scholar** Department of Desalination and Water Treatment The Zuckerberg Institute of Water Research Ben-Gurion University of Negev Sde Boqer Campus, Israel-84990
Nov 2015- Feb 2016	**Senior Project Engineer** Department of Civil Engineering Indian Institute of Technology Kanpur Kanpur 208016, India

EDUCATION

Jan 2010- Oct 2015	**Ph.D. in Civil Engineering** Indian Institute of Technology Kanpur, India
July 2007- Dec 2009	**M. Tech. in Environmental Engineering and Management** Indian Institute of Technology Kanpur, India

JOURNAL PUBLICATIONS: 52

1. Barbhuiya, N.H., and **Singh, S.P.[#] (2024)** In-situ oxidative, catalytic oxidative, and non-oxidative electro-cleaning of fouled conductive membranes. **ACS ES&T Engineering. (IF: 7.1). Accepted *[#]corresponding author***
2. Kumar, P., Nawaz, T., and **Singh, S.P.[#] (2024)** Optimization of electrocoagulation process parameters for the treatment of oil industry drill site wastewater. **Environmental Science and Pollution Research, 31, 47101-47115. (IF: 5.8), *[#]corresponding author***
3. Misra, U., Jashrapuria, K., and **Singh, S.P.[#] (2024)** Fabrication of polyether sulfone-laser induced graphene composite electroconductive membrane and its application in biofouling control and chromium removal. **Journal of Membrane Science, 694, 122394 (IF: 9.5), *[#]corresponding author***
4. Barbhuiya, N.H., and **Singh, S.P.[#] (2024)** *Ex-Situ* and *In-Situ* Organic Fouling Monitoring in Laser-Induced Graphene-Based Electroconductive Membranes for Desalination and Wastewater Treatment. **ACS Applied Nano Materials. (IF: 6.14). https://doi.org/10.1021/acsanm.4c01366 *[#]corresponding author***
5. Misra, U., Barbhuiya, N.H., Rather, Z.H., and **Singh, S.P.[#] (2024)** Solar interfacial evaporation devices for desalination and water treatment: Perspective and future. **Advances in Colloid and Interface Science, 327, 103154 (IF: 15.6) *[#]corresponding author***
6. Karthick, S., Wanjari, V.P., Kanwar, B., and **Singh, S.P.[#] (2024)** laser-induced graphene as a cathode catalyst for microbial fuel cell. **ACS Applied Nano Materials. 7, 3, 2639–2649 (IF: 6.14) *[#]corresponding author***
7. Barbhuiya, N.H., Misra, U., Kanwar, B., and **Singh, S.P.[#] (2024)** Persulfate enhanced ciprofloxacin removal from water by laser-induced graphene-based electroconductive ultrafiltration membrane. **RSC Environmental Science: Water Research & Technology. 10, 442-456 (IF: 5.0) *[#]corresponding author***
8. Dixit, N., Nair, A.M., and **Singh, S.P.[#] (2024)** Enhanced Bacterial and Viral Disinfection with Copper Nanoparticle optimized LIG Composite Electrodes and Filters. **Journal of Environmental Science Accepted (IF: 6.9) *[#]corresponding author***
9. Bhattacharya, M., Barbhuiya, N.H., and **Singh, S.P.[#] (2024)** Single step synthesis of sulfidated nanoscale iron modified kaolin clay for hexavalent chromium remediation from groundwater. **Groundwater for Sustainable Development**. 101196 **(IF-5.9), *[#]corresponding author***
10. Barbhuia N.H., Nair, A.M., Dixit, N., and **Singh, S.P.[#] (2024)** Iron Nanoparticle-Incorporated Laser-Induced Graphene Filters for Environmental Remediation via an In Situ Electro-Fenton Process. **ACS Omega**. **https://doi.org/10.1021/acsomega.4c00959 (IF: 4.1) *[#]corresponding author***
11. Bhattacharya, M., Barbhuiya, N.H., and **Singh, S.P.[#] (2023)** Performance evaluation of sulfidated nanoscale iron for hexavalent chromium removal from groundwater in sequential batch study. **Environmental Science and Pollution Research**. 30, 123055–123066 **(IF-5.8), *[#]corresponding author***
12. Jashrapuria, K., and **Singh, S.P.[#] (2023)** Zwitterionic polymer brush functionalized Graphene oxide blended Polyethersulfone membrane with enhanced performance and anti-biofouling properties. **Journal of Membrane Science, 687, 122032 (IF: 9.5) *[#]corresponding author***
13. Koli, M.M., Ranjan., R. and **Singh, S.P.[#] (2023).** Functionalized graphene-based ultrafiltration and thin-film composite nanofiltration membranes for arsenic, chromium, and fluoride removal from simulated groundwater: Mechanism and effect of pH. **Process Safety and Environmental Protection. 179, 603-617 (IF: 7.8)[#] *corresponding author***

14. Koli, M.M., and **Singh, S.P.[#] (2023).** Surface modified ultra- and nanofiltration membranes for selective removal of heavy metals and inorganic groundwater contaminants: A review. **Environmental Science: Water Research & Technology. 9, 2803-2829 (IF: 5.0)** [#] ***corresponding author***
15. Ghosh, S., Harsha N.V.M.S., **Singh, S.P.,** and Shriwastav, A., **(2023)** Simultaneous removal of ciprofloxacin and disinfection from wastewater by combined photocatalytic reactor (PCR) and membrane bioreactor (MBR) system. **Journal of Environmental Chemical Engineering, 11(5), 110855 (IF: 7.7)**
16. Misra, U., Dixit, N., and **Singh, S.P.[#] (2023)** Effect of Laser Parameters on Laser-Induced Graphene Filter Fabrication and Its Performance for Desalination and Water Purification. **ACS applied materials & interfaces 15, 7899-7910 (IF: 9.5)**[#]***corresponding author***
17. Nair, A.M., Kumar, A., Barbhuia N.H., and **Singh, S.P.[#] (2023)** Electrochemical Inactivation of Enteric Viruses MS2, T4, and Phi6 using doped Laser-Induced Graphene Electrodes and Filters. **RSC Environmental Science: Nano**. **10, 2077-2089 (IF: 7.3)** [#]***corresponding author***
18. Kumar, A., Barbhuia N.H., Nair, A.M., Jashrapuria, K., Dixit, N., and **Singh, S.P.# (2023)** In-situ fabrication of titanium suboxide-laser induced graphene composites: Removal of organic pollutants and MS2 Bacteriophage. **Chemosphere, 335, 138988 (IF: 8.9)** [#]***corresponding author***
19. Wanjari, V.P., Duttagupta, S.P., and **Singh, S.P.[#] (2023)** Dual Linear Range Laser-Induced Graphene-Based Sensor for 4-Nitrophenol Detection in Water. **ACS Applied Nano Materials. 6, 13, 11351–11360 (IF: 6.14)** [#]***corresponding author***
20. Reddy A.S., Wanjari, V.P., and **Singh, S.P.[#] (2023)** Design, synthesis, and application of thermally responsive draw solutes for sustainable forward osmosis desalination: A review. **Chemosphere, 317, 137790 (IF: 8.9)** [#]***corresponding author***
21. Kothawale,S.S., Kumar. L., and **Singh, S.P.[#] (2023)** Role of organisms and their enzymes in the biodegradation of microplastics and nanoplastics: A review. **Environmental Research, , 232, 116281(IF: 8.3)** [#]***corresponding author***
22. Wanjari, V.P., Reddy A.S., Duttagupta, S.P., and **Singh, S.P.[#] (2023)** Laser-induced graphene-based electrochemical biosensors for environmental applications: a perspective. **Environmental Science and Pollution Research**. **30(15):42643-42657. (IF-5.7),** [#]***corresponding author***
23. Kumar, A., Barbhuia N.H., Jashrapuria, K., Dixit, N., Arnusch, C.J., and **Singh, S.P.[#] (2022)** Magnéli-Phase Ti4O7-Doped Laser-Induced Graphene Surfaces and Filters for Pollutant Degradation and Microorganism Removal. **ACS applied materials & interfaces 14 (46), 52448-52458 (IF: 9.5)**[#]***corresponding author***
24. Pisharody,L., Thamaraiselvan, C., Manderfeld, E., **Singh, S.P.,** Rosenhahn, A., Arnusch, C.J., **(2022)** Antimicrobial and Antibiofouling Electrically Conducting Laser-Induced Graphene Spacers in Reverse Osmosis Membrane Modules. **Advanced Materials Interfaces 9 (33), 2201443 (IF: 6.38)**
25. Barbhuiya, N.H., and Misra, U., and **Singh, S.P.[#] (2022)** Stacked Laser-Induced Graphene Joule Heaters for Desalination and Water Recycling. **ACS Applied Nano Materials. 5, 10991–11002 (IF: 6.14)** [#]***corresponding author***
26. Kumar, A., Barbhuia N.H., and **Singh, S.P.[#] (2022)** Magnéli Phase Titanium Sub-oxides Synthesis, Fabrication and its Application for Environmental Remediation: Current Status and Prospect. **Chemosphere, 307(2), 135878 (IF: 8.9)** [#]***corresponding author***
27. Dixit, N. and **Singh, S.P.[#] (2022)** Laser-Induced Graphene (LIG)- a Smart and Sustainable Material to Restrain COVID-19 or Similar Pandemics and Endemics in the Environment – A Perspective. **ACS Omega**. **7, 6, 5112–5130. (IF-4.1),** [#]***corresponding author***
28. Barbhuiya, N.H., Kumar, A., Singh, A., Chandel, M. K., Arnusch, C.J., Tour, J. M. and **Singh, S.P.[#] (2021)** The Future of Flash Graphene for the Sustainable Management of Solid Waste. **ACS Nano**. **15, 15461–15470. (IF-17.1),**[#]***corresponding author***

29. Barbhuiya, N.H., Misra, U., and **Singh, S.P.**[#] **(2021)** Biocatalytic membranes for combating the challenges of membrane fouling and micropollutants in water purification: A review. **Chemosphere**. **286, 131757. (IF-8.9),** [#]***corresponding author***

30. Barbhuiya, N.H.; **Singh, S.P**[#].; Makovitzki, A.; Narkhede, P.;Oren, Z.; Adar, Y.; Lupu, E.; Cherry, L.; Monash, A.; Arnusch, C.J[#]. **(2021)** Virus Inactivation in Water Using Laser-Induced Graphene Filters. **Materials. 14, 3179. (IF-3.4)** [#]***corresponding author***
31. Barbhuiya, N.H., Misra, U., and **Singh, S.P.**[#] **(2021)** Synthesis, Fabrication, and Mechanism of Action of Electrically Conductive Membranes: A Review. Environmental Science: **Water Research & Technology (RSC)**. **7, 671-705. (IF-5.0)** [#]***corresponding author***
32. Agrawal, S., Ranjan, R., Lal, B., Rahman, A., **Singh, S. P.,**[#] Selvaratnam, T., and Nawaz, T.,[#] **(2021)** Synthesis and Water Treatment Applications of Nanofibers by Electrospinning. **Processes**. **9(10), 1779. (IF-3.5)** [#]***corresponding author***
33. Barbhuiya, N.H., Kumar, A., and **Singh, S.P.**[#] **(2021)** A Journey of Laser-Induced Graphene in Water Treatment. Transactions of the Indian National Academy of Engineering. **6, 159–171.** [#]***corresponding author***
34. Thamaraiselvan, C., Wang. J. b., James D. K., Narkhede, P., **Singh, S.P.**[#]**,** Jassby, D.[#], Tour, J. M.[#], and Arnusch, C.J.[#] **(2019)** Laser-induced graphene and carbon nanotubes as conductive carbon-based materials in environmental technology. **Materials Today**, **34, 115-131. (IF-24.2)** [#]***corresponding authors***
35. Thakur, A.K.[#], **Singh, S.P**.[#]**,** Thamaraiselvan, C., Kleinberg, M.N., and Arnusch, C.J. **(2019)** Graphene oxide on laser-induced graphene filters for antifouling, electrically conductive ultrafiltration membranes**. Journal of Membrane Science**,591, 117322. ***(IF-9.5)*** [#]***Authors with equal contribution***
36. Gupta, A., Holoidovsky, L., Thamaraiselvan. C., Thakur, A. K., **Singh, S. P.,** Meijer, M. M., and Arnusch, C.J. **(2019)** Silver-Doped Laser-Induced Graphene for Potent Surface Antibacterial Activity and Anti-biofilm Action. **Chemical Communications**, 55, 6890--6893. ***(IF-4.9)***
37. Luong D.X., Yang, K., Yoon, J., **Singh, S.P**., Wang, T., Arnusch, C.J., and Tour, J. M. **(2019)** Laser-induced Graphene Composite Multifunctional Surface for Energy and Environmental application. **ACS Nano.** *13* (2), pp 2579-2586. ***(IF-17.1)***
38. Thakur, A.K.[#], **Singh, S.P**.[#]**,** Kleinberg, M.N., Gupta, A., and Arnusch, C.J. **(2019)** Laser-Induced Graphene–PVA Composites as Robust Electrically Conductive Water Treatment Membranes**. ACS Applied Materials & Interfaces**, 11(11), pp 10914-10921. ***(IF-9.5)*** [#]***Authors with equal contribution***
39. **Singh, S.P**., Ramanani, S., Kaufman, Y. and Arnusch, C.J. **(2018)** Laser-Induced Graphene Biofilm Inhibition: Texture Does Matter. **ACS Applied Nano Materials.** 1 (4), pp 1713–1720. **(IF-5.9)**
40. Chyan, Y., Ye, R., Li, Y., **Singh, S.P**., J., Arnusch, C.J., and Tour, J. M. **(2018)** Laser-Induced Graphene by Multiple Lasing: Towards Electronics on Cloth, Paper and Food. **ACS Nano.** *12* (3), pp 2176–2183. ***(IF-17.1)***
41. Karthik, R., **Singh, S.P**., Kasher, R. and Arnusch, C.J. **(2018)** An environmentally-friendly chitosan-lysozyme bio-composite for the removal of dyes and heavy metals from aqueous solutions. **Carbohydrate Polymer.** 199, pp 506-515 ***(IF-11.2)***
42. **Singh, S.P**., Li, Y., Zhang, J., Tour, J. M., and Arnusch, C.J. **(2018)** Sulfur-doped Laser Induced Porous Graphene Derived Form Polysulfone-class Polymers and Membranes. **ACS Nano.** 12(1), 289-297. ***(IF-17.1)***
43. Bernstein, R., Singer, C. E., **Singh, S. P**., Canwei, M., and Arnusch, C.J. **(2018)** UV Initiated Surface Grafting on Polyethersulfone Ultrafiltration Membranes via Ink-jet Printing Assisted Modification. **Journal of Membrane Science**. 548, 73-80 ***(IF-9.5)***

44. **Singh, S.P**.[#], Karthik, R.[#], Kasher, R. and Arnusch, C.J. **(2018)** An Environmental Friendly Silk Protein Sericin and Chitosan Bio-composite for the Uptake of Hexavalent Chromium Ions and Methyl Orange Dye. **RSC Advances**. 8(48), 27027-27036. ***(IF-3.9). [#]Authors with equal contribution***
45. Karthik, R.[#], **Singh, S.P**.[#], Li, Y., Tour, J.M., Kasher, R. and Arnusch, C.J. **(2017)** Polyimide Derived Laser-induced Graphene as Adsorbent for Cationic and Anionic Dyes. **Carbon**. 124,513-522. ***(IF-10.9). [#]Authors with equal contribution***
46. **Singh, S.P**., Li, Y., Be'er, A., Oren, Y., Tour, J.M. and Arnusch, C.J. **(2017)** Laser-Induced Graphene Layers and Electrodes Prevents Microbial Fouling and Exerts Antimicrobial Action. **ACS Applied Materials & Interfaces**, 9(21), 18238-18247. ***(IF-9.5)***
47. **Singh, S.P**., Guha, S., Bose, P. and Kunnikuruvan, S. **(2017)** Mechanism of the Hydrolysis of Endosulfan Isomers. **The Journal of Physical Chemistry A (ACS)**, 121(27), 5156-5163. ***(IF-2.9)***
48. **Singh, S.P**. and Bose, P. **(2017)** Reductive Dechlorination of Endosulfan Isomers and its Metabolites by Zero-valent Metals: Reaction Mechanism and Degradation Products. **RSC Advances**, 7(44), 27668-27677. ***(IF-3.9)***
49. **Singh, S.P**., Bose, P. and Guha, S. **(2017)** Impact of the Composition of the Bacterial Population and Additional Carbon Source on Pathway and Kinetics of Degradation of Endosulfan Isomers. **Environmental Science: Processes & Impacts (RSC)**, 19, 964-974. ***(IF-5.5)***
50. **Singh, S.P**. and Bose, P. **(2016)** Degradation Kinetics of Endosulfan Isomers by Micron- and Nano-sized Zero Valent Iron Particles (MZVI and NZVI). **Journal of Chemical Technology & Biotechnology (Wiley)**, 91(8), 2313-2321. ***(IF-3.4)***
51. **Singh, S.P**. and Bose, P. **(2015)** Degradation of Soil-adsorbed DDT and its Residues by NZVI Addition. **RSC Advances**, 5(114), 94418-94425. ***(IF-3.9)***
52. **Singh, S. P**., Bose, P., Guha, S., Gurjar, S., Bhalekar, S., **(2013).** Impact of Addition of Amendments on the Degradation of DDT and its Residues Partitioned on Soil. **Chemosphere**, 92(7), 811-820. ***(IF-8.9)***

PATENTS: 10 (5 Granted, 4 Provisional, 1 under process)

1. Indian Patent **(2023) Singh, S.P.,** Kumar, A., **Nano and Micro-sized Titanium Suboxide from TiO2 powder and Doped Polymer Films for Energy and Environmental Application**. **Patent No. 426680**
2. Indian Patent **(2023) Singh, S.P.,** Barbhuiya, N.H., and Misra, U., **Liquid vapor generation system and methods for manufacturing. Patent No. 434993**
3. Indian Provisional Patent **(2023) Singh, S.P.,** Barbhuiya, N.H., and Bhattacharya, M **Sulfidated nanoscale iron particles modified kaolin for heavy metal removal". A provisional specification. application number 202321048337**
4. Indian Provisional Patent **(2024) Singh, S.P.,** Misra, U., and Jasrapuriya, K., **Fabrication of electroconductive membranes with asymmetric pore structure using conventional polymers". application number 202421002146**
5. Indian Provisional Patent **(2024) Singh, S.P.,** and Aishwarya C.L., **Biomimetic Superhydrophobic Laser-Induced Graphene Surface for Desalination and Brine Treatment with Excellent Salt Resistance". application number 202421013633**
6. Indian Provisional Patent **(2024) Singh, S.P.,** and Barbhuiya, N.H., In-situ oxidative, catalytic oxidative, and non-oxidative electro-cleaning of fouled conductive membranes**". application number 202421047801**
7. Arnusch, C.J., **Singh S. P**., Franklin, S., Oren, Y., Li, Y. and Tour, J. **(2021)**. **Antibiofilm and Antimicrobial Functional Membrane Spacer**. PCT/IL2017/050545, WO2017199247. **US, and EU patent**.

8. Arnusch, C.J. and **Singh S. P**. **(2021)**. **Laser-Induced Graphene from Recycled Polymer Membranes**. No. 63/163876. **US provisional patent**
9. Tour, J. M; Luong D.X., Arnusch, C.J., **Singh S. P**., Thakur A.K. Stanford, Michael, G., Li, John, T., Presutti, Steven, E., **(2020). Laser-Induced Graphene Composite and Sensors and Methods of use thereof**. WO 2020/197606 A9. **US patent**.
10. Tour, J., Chyan, y., Arnusch, C.J., **Singh S. P**., Li, Y., Kittrell, C., Ye, Y., Miller, J., Kingstlinger, I., and Cofer, S., **(2019)**. **Polymer-Derived Laser-Induced Graphene Materials and Uses Thereof**. US 2019/0330064 A1. **US patent**.

BOOK Edited: 6

1. Sinha, A., **Singh, S. P**., Agarwal, A. K., Gupta, T., and Gupta, A. B. **(2023),"** Persistent Pollutants in Water and Advanced Treatment Technology. ed., Singapore, Springer
2. **Singh, S. P.,** Agarwal, A. K., Gupta, T., and Maliyekkal, S. M. **(2022)**,"*New Trends in Emerging Environmental Contaminants*. ed., Singapore, Springer,
3. **Singh, S. P.,** Agarwal, A. K., Kumar, k., and Srivastav, S. K., **(2022)**," *Metal Nanocomposites for Energy and Environmental Applications*. ed., Singapore, Springer,
4. **Singh, S. P.,** Rathinam, K., Gupta, T., and Agarwal, A. K. **(2021)**," *Pollution Control Technologies*. ed., Singapore, Springer,
5. **Singh, S. P.,** Rathinam, K., Gupta, T., and Agarwal, A. K. **(2021)**, "," *Nanomaterials and Nanocomposites for Environmental Remediation* ed., Singapore, Springer
6. Gupta T., **Singh S.P**., Rajput P., Agarwal A. K., **(2020)** Measurement, Analysis and Remediation of Environmental Pollutants. **Springer, Singapore**

BOOK Chapter: 30

1. Chauhan N., Sharma R., Nandan R., Singh S. (2023) "Synthesis of ceramic membranes and their application in wastewater treatment and emerging contaminants removal". *Sinha A., Singh S. P., Gupta A. B., (eds) Persistent Pollutants in Water and Advanced Treatment Technology. Springer Nature.* ***[#]corresponding author***
2. Nair A.M., Singh S. P. (2023) Biofouling mitigation strategies in membrane systems for wastewater treatment. In: *Sinha A., Singh S.P, Gupta A. B., (eds) Persistent Pollutants in Water and Advanced Treatment Technology. Springer Nature.* ***[#]corresponding author***
3. Sharma R., Chauhan N., Nair A.M., Singh, S. P. (2023) Biomimetic membranes for Desalination and Emerging Contamination (ECs) removal. In: *Sinha A., Singh S.P, Gupta A. B., (eds) Persistent Pollutants in Water and Advanced Treatment Technology. Springer Nature.* ***[#]corresponding author***
4. Ranjan R, and Singh S. P. (2023). Removal of urea and ammonia from wastewater. In: Sinha A., P. Singh S., Gupta A.B. *Persistent Pollutants in Water and Advanced Treatment Technology. Sinha A., Singh S.P, Gupta A. B., (eds) Persistent Pollutants in Water and Advanced Treatment Technology. Springer Nature.* ***[#]corresponding author***
5. Sinha A., Singh S. P., Gupta A. B., (2023) "Persistent Pollutants in Water and Advanced Treatment Technology". *Sinha A., Singh S. P., Gupta A. B., (eds) Persistent Pollutants in Water and Advanced Treatment Technology. Springer Nature.*
6. U Kannan, G Pullangott, SP Singh, SM Maliyekkal (2023) Nanoscale silver enabled drinking water disinfection system. *In Chaudhery, M.H., and Nashaat N.N., Modern Technologies for Treatment of Environmental Pollutants*. *Elsevier*

7. Misra U., Nishad V., Singh S. P.,[#] (2022) Introduction to Membrane Distillation and Its Application in Emerging Contaminants Removal. In: *P. Singh S., Agarwal A.K., Gupta T., Maliyekkal S.M. (eds) New Trends in Emerging Environmental Contaminants. Energy, Environment, and Sustainability*. Springer, Singapore. [#]***corresponding author***
8. Singh, S. P. [#], Agarwal, A. K., Gupta, T., and Maliyekkal, S. M. (2022) Introduction of New Trends in Emerging Environmental Contaminants. In: *P. Singh S., Agarwal A.K., Gupta T., Maliyekkal S.M. (eds) New Trends in Emerging Environmental Contaminants. Energy, Environment, and Sustainability*. Springer, Singapore. [#]***corresponding author***

9. Kanwar, B., Barbhuiya, N.H., Kharade, I.V., Shriwastav, A., Singh, S.P., [#] (2022) Application of Microbial Fuel Cells for the Treatment of Emerging Contaminants from Wastewater: An Overview. *In: P. Singh S., Agarwal A.K., Gupta T., Maliyekkal S.M. (eds) New Trends in Emerging Environmental Contaminants. Energy, Environment, and Sustainability. Springer, Singapore.* [#]***corresponding author***
10. Monachan, M., Dixit, N., Maliyekkal, S.M., & Singh, S. P. [#] (2022) Reverse Osmosis (RO) and Nanofiltration (NF) Membranes for Emerging Contaminants (ECs) Removal. *In: Singh, S.P., Aggarwal A.K., Gupta T., Maliyekkal S.M. (Eds), New Trends in Emerging Environmental Contaminants. Springer, Singapore.* [#]***corresponding author***
11. Kumar P., Kumar A., Nawaz T. Singh S. P., [#] (2022), Electrocoagulation Process for the Removal of Emerging Pollutants in Water and Wastewater. *In: Singh, S.P., Agarwal, A.K., K., Gupta, T., Maliyekkal, S. M. (Eds.), New Trends in Emerging Environmental Contaminants. Springer, Singapore.* [#]***corresponding author***
12. Koli M., Jashrapuria K., Johari A., & Singh, S.P., [#] (2022), Sequestering Groundwater Contaminants via Emerging Nanocomposite Adsorbents. *In: Singh S.P., Agarwal A.K., Kumar K., Srivastav S.K. (eds) Metal Nanocomposites for Energy and Environmental Applications. Energy, Environment, and Sustainability. Springer, Singapore*. [#]***corresponding author***
13. Reddy, S, Barbhuiya, N.H & Singh, S.P.,[#] (2022). Point-of-use drinking water treatment systems and their performance in removal of emerging contaminants *In: Singh, S.P., Agarwal, A.K., Gupta, T., Maliyekkal, S.M. (Eds), New Trends in Emerging Environmental Contaminants. Springer*. [#]***corresponding author***
14. Sethulekshmi S., Kothawale S. S., Krishnan S., Karim A. V., Kalbar K., Singh S. P., Shriwastav A. (2022) Occurrence, Fate, and Health Hazards of Microplastics Pollution, *In: Maliyekkal S. M., Singh S. P. (Eds.), New Trends in Emerging Environmental Contaminants. Springer Nature,*
15. Sharma R., Kalbar P., Srivastav S.K., Kumar K., Singh S.P., [#] (2022) Metal Nanocomposite Synthesis and Its Application in Electrochemical CO_2 Reduction. *In: Singh S.P., Agarwal A.K., Kumar K., Srivastav S.K. (eds) Metal Nanocomposites for Energy and Environmental Applications. Energy, Environment, and Sustainability. Springer, Singapore.* [#]***corresponding author***
16. Singh, S. P. [#] Agarwal, A. K., Kumar, k., and Srivastav, S. K., (2022)," Introduction of Metal Nanocomposites for Energy and Environmental Applications. *In: Singh S.P., Agarwal A.K., Kumar K., Srivastav S.K. (eds) Metal Nanocomposites for Energy and Environmental Applications. Energy, Environment, and Sustainability. Springer, Singapore.* [#]***corresponding author***

17. Kumar, A., Singh, S. P. [#], (2021) Titanium Oxide Composites with Graphene and Laser-Induced Graphene for the Environmental Applications. *In: Singh, S.P., Rathinam, K., Gupta, T., Agarwal, A.K. (Eds.) Nanomaterials and Nanocomposites for Environmental Remediation. Springer, Singapore.* [#]***corresponding author***

18. Barbhuiya, N.H. & Singh, S.P. [#] (2021), Membrane Technology for Desalination and Wastewater recycling. *In: Singh, S.P., Rathinam, K., Gupta, T., Agarwal, A.K. (Eds.), Pollution Control Technologies: Current Status and Future Prospects. Springer, Singapore.* [#]***corresponding author***

19. Jashrapuria K. & Singh, S.P. [#] (2021). Forward Osmosis in Desalination and Wastewater Treatment. *In: Singh, S.P., Rathinam, K., Gupta, T., Agarwal, A.K. (Eds.), Pollution Control Technologies: Current Status and Future Prospects. Springer, Singapore.* [#]***corresponding author***

20. Dixit N.D., Shriwastav A. & Singh, S.P. [#] (2021), Metal and Carbon-based Nanomaterials For Water Disinfection. *In: Singh, S.P., Rathinam, K., Gupta, T., Agarwal, A.K. (Eds.), Pollution Control Technologies: Current Status and Future Prospects. Springer, Singapore.* [#]***corresponding author***

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22. Singh, S. P. [#], Rathinam, K., Gupta, T., and Agarwal, A. K. (2021), "Introduction of Nanomaterials and Nanocomposites for Environmental Remediation. *Nanomaterials and Nanocomposites for Environmental Remediation. Springer, Singapore.* [#]***corresponding author***

23. Shriwastav, S., Singh, S. P., and Singh, K.K., (2021) Multifunctional Hybrid Nanostructures as New Generation Environmental Decontamination Materials. *In: Singh, S.P., Rathinam, K., Gupta, T., Agarwal, A.K. (Eds.) Nanomaterials and Nanocomposites for Environmental Remediation. Springer, Singapore.*

24. Kumar, j., Singh, K.K., Shriwastav, S., and Singh, S. P., (2021) Removal of Water Pollutants Utilizing Metal-Organic Framework. *In: Singh, S.P., Rathinam, K., Gupta, T., Agarwal, A.K. (Eds.) Nanomaterials and Nanocomposites for Environmental Remediation. Springer, Singapore*

25. Gupta, T.; Singh, S.P.; Rajput, P.; Agarwal, A.K. (2020) Introduction of Measurement, Analysis and Remediation of Environmental Pollutants. *Measurement, Analysis and Remediation of Environmental Pollutants*, 1-5, Springer, Singapore.

26. Rathinam, K.; Singh, S.P. [#] (2020) Removal of Chromium Ions from Water Using Eco-friendly Based Adsorbents. *Measurement, Analysis and Remediation of Environmental Pollutants*, 445-474, Springer, Singapore. [#]***corresponding author***

27. Krishnan, S.; Karim, AV.; Singh, S.P.; Shriwastav, A. (2020) Measurement, Analysis, and Remediation of Bisphenol-A form Environmental Matrices. *Measurement, Analysis and Remediation of Environmental Pollutants*, 423-444, Springer, Singapore.

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29. Singh S.P. [#], Shriwastav A. [#], Gupta A. K., (2019) Strategies for Collection, Treatment, and Recycling of Fly Ash from Thermal Power Plants. In: Agrawal, R. A., Agrawal, A. K., Gupta T., and Sharma, N.,(eds), Pollutants from Energy Sources. Springer, Singapore. [#]***corresponding author***

30. Karim A.V., Singh S.P., Shriwastav A. (2018) Measurement and Removal of Endosulfan from Contaminated Environmental Matrices. In: Gupta T., Agarwal A., Agarwal R., Labhsetwar N. (eds) Environmental Contaminants. Energy, Environment, and Sustainability. Springer, Singapore

CONFERENCE PAPERS/PRESENTATIONS: 83

TECHNICAL REPORTS: 3

ACADEMIC ACHIEVEMENTS AND AWARDS

- **INSA Young Associates 2024**
- **Early Career Board (ECB)** of ACS ES&T Engineering (ES&TE) **2024**
- **Professor Krithi Ramamritham Award** for creative research 2022, Awarded in **2023**
- Best Oral Presentation Award (2nd Prize) under the **young investigator's category** at the 13th International Congress on Membranes and Membrane Processes **(ICOM) 2023** at **Chiba, Japan**
- IIT Bombay **Early Research Achiever Award 2021,** Awarded in 2022
- **Best Review Article for 2021**: RSC Environmental Science: Water Research & Technology
- **INAE Young Engineering Award 2020**
- **INAE Young Associate 2020**
- EMS(European Membrane Society) **Young Academics 2020**
- ISEES **Young Scientist Award 2020**
- DST-SYST Scheme for **Young Scientists and Technologists** 2020
- Young Faculty Award 2018, IIT Bombay
- Best oral presentation award (2nd Prize), MELPRO-2018, Prague, Czech Republic: May 2018
- DST-Inspire Faculty Award: July 2017
- DST- International Travel Grant 2014
- SRF (Senior Research Fellow) of CSIR-UGC (New Delhi, India): July-2009 to June-2012.
- Best paper award in Student Symposium on "Research in Civil Engineering", 5-6 March 2009, IIT Madras, Chennai.
- JRF (Junior Research Fellow) of CSIR-UGC (New Delhi, India): July-2007 to June-2009.
- Secured an All India Rank of 91in GATE 2007.
- CSIR-NET for Lectureship: December 2006.

Student Supervision

- Post doctoral students: **2(Guided) 2 (Ongoing)**
- Phd Students: 1 (Submitted) **16 (Ongoing), 4 in advance stage**
- Masters:3 **(Ongoing), 16 (Completed)**

SPONSORED PROJECTS: 22 (8 completed, 14 undergoing)

S. No.	Title	Sponsoring Agency and Officer Concerned	Period	Amount	Achievement
1	New generation membranes with high flux and better selectivity for the removal of emerging contaminants, micro-, and nanoplastics **(as PI)**	IIT Bombay	March 2019- Feb-2022	~120 Lacs	**Objectives delivered (Completed)**
2	Integrated low-pressure membrane system (ILPMS) for water purification and disinfection **(as PI)**	DST-SYST	Feb 2019 to Jan 2024	~48 lacs	**Objectives delivered (Completed)**
3	Metal Doped Laser-Induced Graphene (LIG) Conductive Membranes and Surfaces for the Environmental Remediation **(as PI)**	SERB	Feb 2019 to Jan 2024	~57 lacs	**Objectives delivered (Completed)**
4	Application of Chlorophyll Sensitized TiO_2 in Photocatalytic Degradation of Recalcitrant Organic Pollutants with Visible Light ***(as Co-PI)***	DST	Feb 2020-Nov 2022	~7.5 Lacs	**Objectives delivered (Completed)**

5	Pilot Study for Assessment of Reducing Particulate Air Pollution in Urban Areas by Using Air Cleaning System ***(as Co-PI)***	CPCB	Aug 2020-Dec 2023	~550 Lacs	**Objectives delivered** **(Completed)**
6	Smog Tower Project at Connaught Place. ***(as Co-PI)***	DPCC	Oct 2020-Dec 2023	~550 Lacs	**Objectives delivered** **(Completed)**
7	Submission of Techno-financial proposal for random verification of Annual Inventory on Hazardous waste management-reg. ***(as Co-PI)***	CPCB	Nov 2022-April 2023	~3.84 Lacs	**Objectives delivered** **(Completed)**
8	Portable Membrane technology-based unit for drilling site wastewater treatment **(as PI)**	CoE- in Oil, Gas and Energy	Jan 2021-Jan 2023	~49 Lacs	**Objectives delivered** **(Completed)**
9	Development of Catalytic Membranes Based on Carbon Nanomaterials for Effective Operation of Membrane Based Water Treatment Units **(as PI)**	DST-Inspire	Jan 2019 to Dec 2024	~35 Lacs	**Running**

10	A membrane-based water recycling system (MWRS) for space exploration **(as PI)**	ISRO	Oct 2020 to Sep 2024	~45 lacs	Running
11	Antimicrobial Peptide-Graphene Decorated Anti-Biofouling Reverse Osmosis (RO) Membranes for Desalination and Water Recycling**(as PI)**	DST-WTI	Dec 2020-June 2024	~75 Lacs	Running
12	Development of a Real-Time Monitoring, Modelling, and Treatment Framework of Agricultural Water Pollution**(as PI)**	Indo-Canada (IoE)	Jan 2021-Jan 2024	~5 Lacs	Running
13	Membrane based Zero liquid Discharge system for wastewater treatment (as PI)	TAP-CoE- in Oil, Gas, and Energy (GAIL and Oil India)	Jan 2022-Jan 2025	~20 Lacs	Running
14	**Centre of Excellence (CoE) on Membrane Technologies for Desalination Brine Management and Water Recycling.** (as PI)	DST	March 2023- Feb-2028	~860 Lacs	Running
15	Biomimetic and electroconductive new generation membranes for desalination and wastewater recycling (as PI)	IRCC	May 2023-Nov 2024	10 lacs	Running

16	Conductive Laser Induced Graphene (LIG) based self-cleaning surfaces (As PI)	IRCC	May 2023-April 2026	5 Lacs	**Running**
17	Integrated photocatalytic and membrane bioreactor process for effective removal of emerging contaminants and disinfection ***(as Co-PI)***	DST	Dec 2020-Dec 2024	~74 Lacs	**Running**
18	Fabrication of Portable Membrane technology-based unit for drilling site wastewater treatment **(as PI)**	CoE- in Oil, Gas and Energy	Jan 2024-June 2025	~21 Lacs	**Running**
19	Gogri Hub for the Membrane Research (As PI)	ACR	May 2024-April 2026	~4200 Lacs	Yet to start
20	Produced water treatment coupled with resource recovery and zero liquid discharge (ZLD) strategies (As Co-PI)	CoE- in Oil, Gas and Energy	May 2024-April 2026	80 Lacs	**Running**
21	Electroconductive Membrane for produce water treatment (As PI)	CoE- in Oil, Gas and Energy	May 2024-April 2028	25 Lacs	**Running**
22	Prototype development for solar interfacial evaporation-based desalination and water purification unit (As PI)	Tata Centre	Jan 2023-June 2024	12 Lacs	**Running**

23	Potential of Resource Recovery from RO Reject of Treated Oil and Gas Industry Wastewater (as PI)	IOCL	June 2024-Jan 2025	10 Lacs	**Running**

INVITED TALKS AND LECTURES: ~ 32

WORKSHOP AND CONFERENCE ORGANIZATION: ~12

TEACHING ACTIVITIES

COURCES TAUGHT

- Environmental Microbiology and Ecology (ES 633, PG)
- Membrane Processes (ES 676, UG-PG)
- Applier Environmental Microbiology and Ecology (ES 201, UG)
- Environmental Microbiology Laboratory (ES 253, UG)
- Environmental Studies (ES 200, UG),
- Environmental Nanotechnology (PG)
- Environmental Science and Engineering (ES 600, PG)
- Environmental Monitoring Laboratory (ES651, PG)
- Environmental Field Studies (ES451, UG-PG)
- Environmental Biotechnology (ES 302, UG-PG)

EXTRACURRICULAR AND ADMINISTRAIVE ACTIVITIES

- PhD Coordinator, Environmental Science and Engineering Department (ESED), IIT Bombay: 2021-till Date
- MSc-PhD Coordinator, ESED, IIT Bombay: 2019-till Date
- Website and annual progress report committee, ESED, IIT Bombay: 2019-2021
- Post-doctoral committee member, ESED, IIT Bombay: 2019 to till date
- PlosOne, Academic Editor, 2019- till date
- International Conference on Environmental Science and Engineering (ICESE 2022) 20-22th Jan 2022, Organiser, 2022
- Faculty Development Workshop on "Application of Nanotechnology in Water and Wastewater Treatment" 13-14 Jan 2022. Organizer, 2022
- Faculty Development Workshop on An Overview of Recent Advances in Water and Wastewater Treatment Technologies 10-11 Jan 2022. Co-organizer, 2022
- VI International Conference on Sustainable Energy and Environmental Challenges (V SEEC) (hybrid Mode) 27-29 Dec. 2021, Moderator, 2021
- Webinar on the development of innovative technologies for waste recycling and sustainable management under Swachhata Pakhwada 2021 03 September. 2021, Co-Organizer, 2021
- NJJM Training Course on the Greywater Management, 15-16 Nov 2021 and 6-7 Dec 2021 Co-Organiser, 2021
- NJJM Training Course on the Greywater Management, 6-7 Dec 2021 Co-Organizer, 2021
- Vth International Conference on Sustainable Energy and Environmental Challenges (V SEEC) (Virtual Mode) 19-21 Dec. 2020, Moderator, 2020

- Reviewer Journals (Science of Total Environment, E&T Water (ACS), ACS Applied Materials and Interface, ACS E&T Water, ACS E&T Engineering, Journal of Hazardous materials, ACS I&EC, Applied Nano Materials, PlosOne, Applied Surface Science, Environmental Pollution and Research) 2016 till date
- Student representative DPGC, Department of Civil Engineering, IIT Kanpur: July-2013 to June 2014.

REFERENCES

Prof. Manish Kumar Mr. N. Doug Williams Memorial Centennial Fellowship Joint Faculty in Environmental and Water Resources Engineering & Chemical Engineering, **University of Texas, Austin, USA** **Email: manish.kumar@utexas.edu**	**Prof. Ranil Wickramasinghe** Distinguished Professor Ross E. Martin Chair in Emerging Technologies Chemical Engineering, **University of Arkansas** **Fayetteville, AR 72701, USA** Phone: 479-575-8475 **Email: swickram@uark.edu**	**Prof. James Tour** T. T. and W. F. Chao Professor of Chemistry Professor of Computer Science Professor of Materials Science and NanoEngineering **Rice University, Huston, USA** Smalley-Curl Institute and the NanoCarbon Center, Rice Advanced Materials Institute **Email: tour@rice.edu**
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Other references are available on request.

Declaration: I hereby declare that all the above information given by me is true to the best of my knowledge, and I shall be wholly responsible for any wrong information if found.

Swatantra Pratap Singh