Curriculum Vitae of Bhaskar Jyoti Deka

1. Name and full correspondence address:

Dr. Bhaskar Jyoti Deka,
Associate Professor, Department of Hydrology,
Joint Faculty, Centre for Nanotechnology,
Associate Faculty, International Centre of Excellence for Dams,
Indian Institute of Technology Roorkee, Roorkee, Uttarakhand, India- 247667

2. Email(s) and contact number(s): bhaskar.deka@hy.iitr.ac.in / bhaskar.iitg@gmail.com,
contact: +91-1332-285546, +91-7417285666.

3. Designation and Institution: Assistant Professor, Indian Institute of Technology Roorkee

4. Date of Birth: 01st August 1982

5. Gender (M/F/T): M

6. Category [Gen/SC/ST/OBC]: Gen

7. Whether differently abled (Yes/No): No

8. Academic Qualification (Undergraduate Onwards)

S. No.	Examination passed	Year of passing	Major Subjects / Specialization	University / Institution	% Marks/ Grade
1	Bachelor of Engineering	2006	Civil Engineering	Assam Engineering College, Gauhati University, Assam, India	1st Class
2	Master of Technology	2008	Civil Engineering (Water Resources: Utilization & Environmental Management)	Indian Institute of Technology Guwahati, Assam, India	1st Class
3	Ph.D.	2019	Environmental Engineering (Desalination, Membrane technology)	City University of Hong Kong	1st Class
4	Post-Doc	2020	Desalination, Membrane technology	City University of Hong Kong	-

9. Work experience (in chronological order)

Name and address of employer	Position held (Temporary / Regular)	Duration		Nature of Duties
		From	To	
Department of Hydrology, Indian Institute of Technology Roorkee, India	Regular	3 June 2026	Present	Associate Professor

Department of Hydrology, Indian Institute of Technology Roorkee, India	Regular	10 Sep 2020	2 June 2026	Assistant Professor
Centre for Nanotechnology, Indian Institute of Technology Roorkee, India	Regular	11 Jul 2023	Present	Joint Faculty
Membrane and Water Technology Laboratory, City University of Hong Kong (CityU), Tat Avenue, Kowloon, Hong Kong SAR	Regular	02 Sep 2019	02 Sep 2020	Postdoctoral Fellow
Membrane and Water Technology Laboratory, CityU, Tat Avenue, Kowloon, Hong Kong SAR	Regular	07 Aug 2019	31 Aug 2019	Senior Research Associate (P/T)
Water Desalination and Reuse Center (WDRC), King Abdullah University of Science and Technology (KAUST), Saudi Arabia	Regular	03 Nov 2016	10 Apr 2017	Visiting Research Fellow
Perform roles as Assistant Manager, Design Engineer (water), Engineer (Hydraulics) at various reputed national and multinational organizations	Regular	July 2008	Aug 2016	Management and Consultancy work

10. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant

S.No.	Name of Award	Awarding Agency	Year
1	YUKTI Innovation Challenge 2023 (Yukti 2.0)	Ministry of Education's Innovation Cell, AICTE, Govt. of India.	2023
2	Recipient of Technology Readiness Level Booster (TRLB)	IIT Roorkee, India	2023
3	Outstanding Academic Performance Award	City University of Hong Kong	2018
4	UGC Research funding	Government of Hong Kong	2017
5	Visiting Research Fellow	Water Desalination and Reuse Center (WDRC), King Abdullah University of Science and Technology (KAUST), Saudi Arabia	2016
6	Postdoctoral fellow	Membrane and Water Technology Laboratory, City University of Hong Kong	2019
7	Editorial board member	Journal of Membrane Science	2025

11. Courses taught

- Membranes for Desalination and Purification (PG/PhD)
- Desalination and Membrane Technology (UG)
- Environmental Nanotechnology (PG/PhD)
- Surface Water Quality Modelling (PG/PhD)
- Environmental Planning and Assessment of Projects (PG/PhD)
- Rural Water Supply and Sanitation (PG/PhD)

- Environmental Monitoring and Impact Assessment of Dams (PG/PhD)
- Engineering Hydrology (UG)

12. a: Details of Doctoral theses supervised

Thesis title: Selective recovery of resources from seawater brine
PhD scholar name: Dr. Shubham Ketan Sharma, IIT Roorkee, India
Status: Thesis submitted (Date of defence: 4th July 2025)
My role: Sole supervision

Thesis title: Development of innovative nanocomposite membranes for desalination and water reclamation
PhD scholar name: Gaurav Vaghela, IIT Roorkee, India
Status: Thesis submitted (Date of defence: 11th November 2025)
My role: Sole supervision

b: Details of Masters theses supervised

Thesis title: Superhydrophobic nanocomposite membrane fabrication with hybridized electrospinning and electrospraying technology for Membrane distillation application
Student name: Akshit Pushkar

Thesis title: Fabrication of superhydrophobic biodegradable membrane
Student name: Mohd Sahil

Thesis title: Fabrication of Polyether Sulphone-Based Thin Film Composite Membrane Incorporated with Goethite Nanoparticles
Student name: Priya Sonkar

Thesis title: Green Technologies for Leachate Management: Ferrate Oxidation and Advanced Membrane Filtration
Student name: Begraj Singh

Thesis title: Maize Stem Derived Bio Adsorbent for Manganese Removal: From Agricultural Waste to Water Remediation
Student name: Yahaya Yahaya Kassimu

Thesis title: Electrospun polymeric electrocatalyst for hydrogen evolution reaction
Student name: Pawan Ganwar

Thesis title: Highly selective Mixed Matrix Membranes with Tailored ZIF-67 Nanofillers for CO_2 Separation
Student name: Inzamam Ul Haque

Thesis title: Visible-light driven polymeric nanocomposite beads for the photodegradation of emerging beta blocker contaminants
Student name: Srijoni Das (Gold Medalist)

13. Publications *(List of papers published in SCI Journals, in year wise descending order):*

2026

Sharma, A., Bhosle, A. C. and **Deka, B. J.*** (2026). Enhancing high-temperature fuel cell performance: The impact of silicotungstic acid on phosphoric acid-doped polyether sulfone-polyvinylpyrrolidone membranes, ***Journal of Power Sources***, 670, 239466, https://doi.org/10.1016/j.jpowsour.2026.239466 ***(Q1, Impact factor: 7.9)***

- Sharma, S. K. and **Deka, B. J.*** (2026). Superhydrophobic PVDF-HFP/PMHS membrane reinforced with zirconium oxide nanoparticles for membrane distillation, ***Surfaces and Interfaces,*** 86, 108718, https://doi.org/10.1016/j.surfin.2026.108718 ***(Q1, Impact factor: 6.3)***

2025

- Li, X., Yin, S., Qian, J., Khan, S. A., Shang, W., Sun, J., Farid, M. U., Lu, Gang, Wang, G., **Deka, B. J.**, Guo, J., Zhou, Y., Kim, S., Kim, J., An, A. K.*. Thermal Shielding and Vapor Transport Enhancement in MOF-Enabled Membranes for Membrane Distillation, ***Advanced Science***, e10323, https://doi.org/10.1002/advs.202510323 ***(Q1, Impact factor: 14.1)***

- Lo, J.S.C., Chen, X., Chen, S., Daoud, W. A., Tso, C. Y., Firdous, I., **Deka, B. J.**, Lin, C. S. K.*. Fabrication of multilayer superhydrophobic and biodegradable filters through electrospinning and electrospraying of PHA-SiO_2 biopolymer composites, ***Chemical Engineering Journal***, Volume 512, 162466 (2025). https://doi.org/10.1016/j.cej.2025.162466 ***(Q1, Impact factor: 13.2)***

- Lin, P., Lu, X., **Deka, B. J.** Shang, J., Wu, H., Sun, J., Yi, C., Farid, M. U., Guo, J., An, A. K.*. Research progress in the preparation of electrospinning MOF nanofiber membranes and applications in the field of photocatalysis, ***Separation and Purification Technology,*** 356, 129948, https://doi.org/10.1016/j.seppur.2024.129948 ***(Q1, Impact factor: 8.1)***

- Kassimu, Y. Y., Sharma, S. K., Sharma, S., **Deka, B. J.***. Maize Stem Derived Bio Adsorbent for Manganese Removal: From Agricultural Waste to Water Remediation, ***Environmental Monitoring and Assessment***, **197**, 1168 (2025). https://doi.org/10.1007/s10661-025-14633-y ***(Q2, Impact factor: 3)***

2024

- **Sharma, S. K.** & **Deka, B. J.* (2024).** Engineering novel thin film composite membrane for efficient forward osmosis desalination: Fabrication and performance evaluation, ***ACS Environmental Science & Technology (ES&T) Water*** https://doi.org/10.1021/acsestwater.4c00877 (***Q1, Impact factor: 4.3***).

- Guo, J., Jiang, M., Li, X., Farid, M. U., **Deka, B. J.**, Zhang, B., Sun, J., Wang, Z., Yi, C., Wong, P. K., Jeong, S., Gu, B., An, A. K. (2024) A green springtail-inspired omniphobic slippery membrane with nano-concave re-entrant structures for membrane distillation, ***Nature Communications,*** 15, 7750 (2024). https://doi.org/10.1038/s41467-024-52108-9 ***(Q1, Impact factor: 16.6)***.

- **Jilagam, N. K., Vaghela, G.**, Chakrabarty, T., Guo, J., Farid, M. U., Jeong, S., Shon, H. K., An, A. K., **Deka, B. J.*** (2024). Frontier of metal-organic framework nanofillers for pre-eminent

membrane distillation applications, ***Desalination,*** 592, 118127, https://doi.org/10.1016/j.desal.2024.118127 ***(Q1, Impact factor: 9.8)***.

- **Vaghela, G.**, Pushkar, A., An, A. K., **Deka, B. J.*** (2024). Reinforced PS-PVDF-WO_3 superhydrophobic antiwetting membrane for membrane distillation, ***Desalination,*** 575, 117265, https://doi.org/10.1016/j.desal.2023.117265 ***(Q1, Impact factor: 9.8).***

- Lin, P., Qu, X., **Deka, B. J.**, Hu, C., Zhao, L., Wu, D., Yi, C., Boey, M. W., Farid, M. U., An, A. K.*, Guo, J.* (2024). Engineering ZIF-67 loaded nanofibrous membrane with thermal stabilization treatment for efficient photocatalytic CO_2 reduction, ***Chemical Engineering Journal,*** 489, 151268, https://doi.org/10.1016/j.cej.2024.151268 ***(Q1, Impact factor: 13.2).***

- Farid, M. U., Kharraz, J. A., Sun, J., Boey, M. W., Riaz, M. A., Wong, P. W., Jia, M., Zhang, X., **Deka, B. J.**, Khanzada, N. K., Guo, J., An, A. K.* (2024) Advancements in Nano-enabled Membrane Distillation for a Sustainable Water-Energy-Environment Nexus, ***Advanced Materials,*** 2307950, https://doi.org/10.1002/adma.202307950 ***(Q1, Impact factor: 26.8).***

- Lo, J. S. C., Chen, X., Chen, S., Miao, Y., Daoud, W. A., Tso, C. Y., Firdous, I., **Deka, B. J.**, Lin, C. S. K.* (2024). Fabrication of biodegradable PLA-PHBV medical textiles via electrospinning for healthcare apparel and personal protective equipment, ***Sustainable Chemistry and Pharmacy,*** 39, 101536, https://doi.org/10.1016/j.scp.2024.101536 ***(Q1, Impact factor: 5.8).***

- Wong, P. W., Jia, M., Boey, M. W., Lee, P. H., Mang, S., **Deka, B. J.**, Guo, J., Farid, M. U., Shao, S., Xing, Y., An, A. K. (2024) Evaluating and Predicting Surfactant-Induced Hydrophilization of Pore Channels in Membrane Distillation, ***Journal of Membrane Science,*** 691, 122242 https://doi.org/10.1016/j.memsci.2023.122242 ***(Q1, Impact factor: 9.0).***

- Farid, M.U, Kharraz, J. A., **Sharma, S.**, Khan, R. J., Khanzada, N. K., **Deka, B. J.**, Nallapaneni, M. K., Chopra, S. S., Leu, S., Hasan, S. W., Hilal, N., and An, A. K. (2024) Technological Advancements in Water Heating Approaches for Membrane Distillation Desalination Process: From Bulk to Localized Heating, ***Desalination,*** 574, 117235, https://doi.org/10.1016/j.desal.2023.117235 ***(Q1, Impact factor: 9.8).***

2023

- **Sharma, S. K.**, Truong, D. Q., Guo, J., An, A. K., Naidu, G.***** & **Deka, B. J.* (2023).** Recovery of rubidium from brine sources utilizing diverse separation technologies, ***Desalination,*** 556, 116578, https://doi.org/10.1016/j.desal.2023.116578 ***(Q1, Impact factor: 9.8).***

- **Deka, B. J.*[1], Vaghela, G.**, Guo, J., & An, A. K.* (2023). Electrical impedance spectroscopy for non-destructive detection of wetting, fouling and scaling in membrane distillation, ***Journal of Water Process Engineering***, 53, 103608, https://doi.org/10.1016/j.jwpe.2023.103608 ***(Q1, Impact factor: 6.7).***

- Patidar, N., Yadav, B., Kumar, S., Raj, A., Krishan, G., Singh, S., **Deka, B. J.**, Jeong, S., Pandey, A., Matsuno, Y., Singh, R. D. (2023). A web-enabled tool for site suitability mapping for Managed Aquifer Recharge (MAR) using Google Earth Engine (GEE) and Multi-criteria Decision Analysis (MCDA), **Water Resources Management,** https://doi.org/10.1007/s11269-023-03621-x ***(Q1, Impact factor: 4.426).***

▪ Peng, J., **Deka, B. J.**, Wu, S., Luo, Z., Kharraz, J., Jia, W. (2023) "Rational design of PDA/P-PVDF@PP Janus membrane with asymmetric wettability for switchable emulsion separation," ***Membranes***, *13*(1), 14, https://doi.org/10.3390/membranes13010014 ***(Impact factor: 4.7)***

2022

▪ Wong, P. W., Yim, V. M. W., Guo, J., Chan, B. S., **Deka, B. J.***, An, A. K.* (2022). Non-invasive Real-time Monitoring of Wetting Progression in Membrane Distillation Using Impedance Spectroscopy. ***Environmental Science and Technology***, 56, 535-545, https://doi.org/10.1021/acs.est.1c04433 ***(Q1, Impact factor: 11.4).***

▪ Guo, J., Wong, P. W., **Deka, B. J.**,Zhang, B., Jeong, S., & An, A. K. (2022). Investigation of fouling mechanism in membrane distillation using in-situ optical coherence tomography with green regeneration of fouled membrane. ***Journal of Membrane Science,*** 641, 119894, https://doi.org/10.1016/j.memsci.2021.119894 ***(Q1, Impact factor: 9.0)***.

▪ Khanzada, N.K., **Deka, B. J.,** Kharraz, J., Wong, P. W., Jassby, D., Rehman, S., Leu, S. Y., Kumar, M. & An, A. K. (2022). Elucidating the role of graphene oxide layers in enhancing N-Nitrosodimethylamine (NDMA) rejection and antibiofouling property of RO membrane simultaneously, ***Journal of Membrane Science,*** 643, 120043, https://doi.org/10.1016/j.memsci.2021.120043 ***(Q1, Impact factor: 9.0)*.**

▪ Nganda, A., Kumar, M., Uday, V., Srivastava, P., **Deka, B. J.**, Zitouni, F., Mahlknecht, J. (2022). EI/IOT of PFCs: Environmental Impacts/Interactions, Occurrences, and Toxicities of Perfluorochemicals, ***Environmental Research***, https://doi.org/10.1016/j.envres.2022.114707 ***(Q1, Impact factor: 7.7)***.

▪ Lo, J. S. C., Daoud, W., Tso, C. Y., Lee, H. H., Firdous, I., **Deka, B. J.**, Lin, C. S. K. (2022), Optimization of Polylactic acid-based Medical Textiles via Electrospinning for Healthcare Apparel and Personal Protective Equipment, ***Sustainable Chemistry and Pharmacy***, 30, 100891, https://doi.org/10.1016/j.scp.2022.100891 ***(Q1, Impact factor: 5.8)***

2021

▪ **Deka, B. J.[1],** Guo, J., & An, A. K. (2021). Robust dual-layered omniphobic electrospun membrane with anti-wetting and anti-scaling functionalised for membrane distillation application, ***Journal of Membrane Science,*** 624, 119089, https://doi.org/10.1016/j.memsci.2021.119089 ***(Q1, Impact factor: 9.0)*.**

▪ **Deka, B. J.[1],** Guo, J., Wong, P. W., Khanzada, N.K., Kharraz, J., Tsang, C. W., & An, A. K. (2021). A Conductive Hydrophobic Polyaniline Sandwiched Polyvinylidene Fluoride Membrane for Early Detection of Surfactant-Induced Wetting in Membrane Distillation Using Impedance. ***ACS Applied Polymer Materials,*** 3, 2, 679–690, https://doi.org/10.1021/acsapm.0c00991 ***(Q1, Impact factor: 4.7)***.

▪ Guo, J.[1], **Deka, B. J.[1],** Wong, P. W., Sun, J., & An, A. K. (2021). Fabrication of robust green superhydrophobic hybrid nanofiber-nanosphere membrane for membrane distillation, ***Desalination,*** 520, 115314, https://doi.org/10.1016/j.desal.2021.115314 ***(Q1, Impact factor: 9.8).***

▪ Guo, J., Hanif, A., Shang, J., **Deka, B. J.**, Ning, Z., & An, A. K. (2021). PAA@ZIF-8 incorporated nanofibrous membrane for high-efficiency PM2.5 capture. ***Chemical Engineering Journal***, 405, 126584, https://doi.org/10.1016/j.cej.2020.126584 ***(Q1, Impact factor: 13.2)***.

2020

▪ **Deka, B. J.**[1], Guo, J., Jeong, S., Kumar, M., & An, A. K. (2020). Control of membrane fouling by dissolved algal organic matter using pre-oxidation with coagulation as seawater pretreatment. ***RSC Environmental Science: Water Research & Technology,*** 6, 935–944, https://doi.org/10.1039/C9EW00955H ***(Q1, Impact factor: 3.1)***.

▪ Jia, W., Kharraz, J., Choi, P. J., Guo, J., **Deka, B. J.**, & An, A. K. (2020). Superhydrophobic Membrane by Hierarchically Structured PDMS-POSS Electrospray Coating with Cauliflower-Shaped Beads for Enhanced MD Performance. ***Journal of Membrane Science***, 597, 117638, https://doi.org/10.1016/j.memsci.2019.117638 ***(Q1, Impact factor: 9.0).***

▪ Kharraz, J., Farid, M. U., Khanzada, N.K., **Deka, B. J.**, Arafat, H. A., & An, A. K. (2020). Macro-corrugated and nano-patterned hierarchically structured superomniphobic membrane for treatment of low surface tension oily wastewater by membrane distillation. ***Water Research,*** 174, 115600, https://doi.org/10.1016/j.watres.2020.115600 ***(Q1, Impact factor: 12.4).***

▪ Yim, V. M. W., Lo, S. W., **Deka, B. J.**[#]**,** Guo, J., Kharraz, J., Wong, P. W., Horváth, I. T., & An, A. K. (2020). Molecular engineering low-surface energy membranes by grafting perfluoro-tert-butoxy chains containing fluorous silica aerogels, ***RSC Green Chemistry***, 22, 3283–3295, https://doi.org/10.1039/D0GC00593B ***(Q1, Impact factor: 9.3, [#] 2nd author).***

▪ Guo, J., Fortunato, L., **Deka, B. J.**, Jeong, S., & An, A. K. (2020). Elucidating the fouling mechanism in pharmaceutical wastewater treatment by membrane distillation. ***Desalination***, *Volume 475*, 114148, https://doi.org/10.1016/j.desal.2019.114148 ***(Q1, Impact factor: 9.8).***

2019

▪ **Deka, B. J.**[1]**,** Guo, J., Khanzada, N.K., & An, A. K. (2019). Omniphobic re-entrant PVDF membrane with ZnO nanoparticles composite for desalination of low surface tension oily seawater. ***Water Research***, 165, 114982, https://doi.org/10.1016/j.watres.2019.114982 ***(Q1, Impact factor: 12.4).***

▪ **Deka, B. J.**[1], Lee, E., Guo, J., Kharraz, J., & An, A. K. (2019). Electrospun nanofiber membranes incorporating PDMS- aerogel superhydrophobic coating with enhanced flux and improved anti-wettability in membrane distillation. ***Environmental Science and Technology***, 53(9), 4948–4958. https://doi.org/10.1021/acs.est.8b07254 ***(Q1, Impact factor: 11.4).***

▪ Guo, J., **Deka, B. J.**, Kim, K.J. & An, A. K. (2019). Regeneration of Superhydrophobic TiO_2 Electrospun Membranes in Seawater Desalination by Water Flushing in Membrane Distillation. ***Desalination***, 468, 114054. https://doi.org/10.1016/j.desal.2019.06.020 ***(Q1, Impact factor: 9.8).***

▪ Guo, J., Yan, D. Y. S., Lam, F. L.-Y., **Deka, B. J.**, Lyu, X., Hau Ng, Y., & An, A. K. (2019). Self-Cleaning BiOBr/Ag Photocatalytic Membrane for Membrane Regeneration under Visible Light in Membrane Distillation. ***Chemical Engineering Journal***, Volume 378, 122137. https://doi.org/10.1016/j.cej.2019.122137 ***(Q1, Impact factor: 13.2).***

2018

- **Deka, B. J.**[1], Jeong, S., AlizadehTabatabai, S. A., & An, A. K. (2018). Mitigation of algal organic matter released from Chaetoceros affinis and Hymenomonas by in situ generated ferrate. ***Chemosphere***, 206, 718–727. https://doi.org/10.1016/j.chemosphere.2018.05.052 ***(Q1, Impact factor: 8.1).***

- Lee, E. J., **Deka, B. J.**, & An, A. K. (2018). Reinforced superhydrophobic membrane coated with aerogel-assisted polymeric microspheres for membrane distillation. ***Journal of Membrane Science***, 573, 570–578. https://doi.org/10.1016/j.memsci.2018.12.019 ***(Q1, Impact factor: 9.0).***

2017

- Lee, E. J., **Deka, B. J.**, Guo, J., Woo, Y. C., Shon, H. K., & An, A. K. (2017). Engineering the Re-Entrant Hierarchy and Surface Energy of PDMS-PVDF Membrane for Membrane Distillation Using a Facile and Benign Microsphere Coating. ***Environmental Science and Technology***, 51(17), 10117–10126. https://doi.org/10.1021/acs.est.7b01108 ***(Q1, Impact factor: 11.4).***

2008

- **Deka, B. J.**[1], Sahariah, B. P., & Chakraborty, S. (2008). Anaerobic-Anoxic-Aerobic Three Stage Attached Growth System for Removal of Ammonia–Nitrogen and High Concentration of Phenol. ***Journal of Environmental Research And Development***, *3*(2), 442–448 ***(Impact factor: 4.301).***

14. Detail of patents

Granted Patents

Title: A method of fabrication of superhydrophobic membrane
Name of the inventor: Bhaskar Jyoti Deka, Gaurav Vaghela, Akshit Pushkar and Himanshu Joshi
Application number: 202211008576 (IN), Patent no. 456366, Sl. No. 011172024

Title: A superhydrophobic polystyrene/PVDF membrane coated with WO_3 nanocomposite for membrane distillation application
Name of the inventor: Bhaskar Jyoti Deka, Gaurav Vaghela, Akshit Pushkar and Himanshu Joshi
Application number: 202211008575 (IN), Patent no. 477779, Sl. No. 011182481

Title: A superhydrophobic membrane and method for fabrication of a biodegradable nanocomposite superhydrophobic membrane
Name of the inventor: Bhaskar Jyoti Deka, Gaurav Vaghela and Mohd. Sahil
Application number: 202311007173 (IN), Patent no. 566705, Sl. No. 011221183

Title: Biodegradable nanocomposite superhydrophobic membrane for application in membrane distillation
Name of the inventor: Bhaskar Jyoti Deka, Gaurav Vaghela and Mohd. Sahil
Application number: 202211068384 (IN), Patent no. 569134, Sl. No. 011222133

Title: An agro based coagulant from sugarcane bagasse for heavy metal sequestration from water and wastewater

Name of the inventor: Bhaskar Jyoti Deka, Prajwal Mallikarjun Timashetti and Nagendra Kumar Jilagam

Application No.: 202511023605 (IN), Patent no. 578006, Sl. No. 011225246

Title: Transforming PET waste into cutting-edge omniphobic membranes for sustainable membrane distillation.

Name of the inventor: Bhaskar Jyoti Deka and Gaurav Vaghela

Application number: 202511021952 (IN), Patent no. 583302, Sl. No. 011227443

Title: A method of preparing plasma-engineered fluorine free silanes for enhancing superhydrophobicity of membranes

Name of the inventors: Bhaskar Jyoti Deka, Nagendra Kumar Jilagam and Gaurav Vaghela

Application number: 202311067500 (IN)

Patent no. 591032, Sl. No. 011230681

Patents published

Title: A silane shield advanced superhydrophobic membrane for desalination

Name of the inventor: Bhaskar Jyoti Deka, Nagendra Kumar Jilagam and Gaurav Vaghela

Application number: 202311067499 (IN)

Title: A method for fabrication of a α-iron based composite hydrophilic membrane for forward osmosis application

Name of the inventor: Bhaskar Jyoti Deka, Gaurav Vaghela, Shubham Ketan Sharma, Vinod Kallarackal Gopalakrishna and Priya Sonkar

Application number: 202311057602 (IN)

Title: Development of hybrid α-FeO(OH)-PES-PEOx blended hydrophilic forward osmosis membrane

Name of the inventor: Bhaskar Jyoti Deka, Gaurav Vaghela, Shubham Ketan Sharma, Vinod Kallarackal Gopalakrishna and Priya Sonkar

Application number: 202311057597 (IN)

Title: A method of synthesizing covalent organic framework based polymer beads

Name of the inventor: Ravindra Pandey, Bhaskar Jyoti Deka, Yogesh Kumar and Shubham Ketan Sharma

Application number: 202411055456 (IN)

Title: A novel covalent organic framework adsorbent beads for Rhodamine B removal

Name of the inventor: Ravindra Pandey, Bhaskar Jyoti Deka, Yogesh Kumar and Shubham Ketan Sharma

Application number: 202411055455 (IN)

Title: Fabrication of zirconium oxide-modified superhydrophobic poly(vinylidene fluoride-co-hexafluoropropylene) and poly(methylhydrosiloxane) membrane for wastewater treatment.

Name of the inventor: Bhaskar Jyoti Deka and Shubham Ketan Sharma

Application number: 202511027249 (IN)

Title: A Process of Sustainable Modification of Sugarcane Bagasse via Periodate Oxidation and Metal Oxide-Catalyzed Hydroxylation.

Name of the inventor: Bhaskar Jyoti Deka, Prajwal Mallikarjun Timashetti and Shubham Ketan Sharma

Application number: 202511027878 (IN)

Patents filed

Title: A hydroxy-modified biomass for rubidium adsorption

Application number: 202511033370 (IN)

Name of the inventors: Bhaskar Jyoti Deka, Prajwal Mallikarjun Timashetti and Shubham Ketan Sharma.

15. ~~Books/Reports/~~Book Chapters/~~General articles~~ etc.

S. No.	Title	Author's name	Publisher	Year of Publication
1	Valorization of Biowaste to Biowealth Using Cellulase Enzyme During Prehydrolysis Simultaneous Saccharification and Fermentation Process. In Enzymes in the Valorization of Waste	Bhatia, A., Rajpal, A., Deka, B. J., Kazmi, A. A., & Tyagi, V. K.	Enzymes in the Valorization of Waste (pp. 25-37). CRC Press	2022
2	Energy and resources recovery from wastewater treatment systems.	Bohra, V., Ahamad, K. U., Kela, A., Vaghela, G., Sharma, A., Deka, B. J.	Vinay Kumar Tyagi, Manish Kumar, Alicia K.J. An & Zeynep Cetecioglu (Eds.) Clean Energy & Resource Recovery: Wastewater Treatment Plants are Biorefineries. Elsevier	2021
3	Environment impact assessment of COVID-19	Deka, B. J., Bohra, V., Alam, W., Sanasam, S., Guo, J., Borana, L., & An, A. K.	Manish Kumar Goyal & Anil Kumar Gupta (Eds.), Integrated Risk of Pandemic: Covid-19 Impacts, Resilience and Recommendations, Disaster Resilience and Green Growth (pp. 169-195). Singapore: Springer Nature.	2020
4	Environment Modeling for Sustainable Development	Borana, L., Deka, B. J., Guo, J., & An, A. K.	Rao Y. Surampalli, Tian C. Zhang, Manish Kumar Goyal, Satinder K. Brar & R. D. Tyagi (Eds.), Sustainability: Fundamentals and Applications (pp. 229-254). US: Wiley.	2020
5	Electrospun Nanofiber Membranes for Membrane Distillation	Guo, J., Deka, B. J., & An, A. K.	Kang-Jia Lu & Tai-Shung Chung (Eds.), Membrane distillation: membranes, hybrid systems and pilot studies (pp.	2019

			107-140). CRC Press, US: Taylor & Francis.	

16. Languages Known

Language	Read (Excellent/Good/Fair)	Write (Excellent/Good/Fair)	Speak (Excellent/Good/Fair)
English	Excellent	Excellent	Excellent
Assamese	Excellent	Excellent	Excellent
Hindi	Fair	Fair	Good
Nagamese	Fair	Fair	Good
Oriya	No	No	Fair
Bengali	Fair	Fair	Fair

17. Research projects

Sl No.	Title of Project	Funding Agency	From Date	Status	PI/Co-PI	Approved Cost (₹)
1	Advanced nanocomposite polymeric membranes for conversion of wastewater into potable water and revitalization of air in space.	ISRO, India	2022	Ongoing	PI	33,52,282
2	Development of omniphobic nanofibrous membrane for hybrid adsorbent-membrane distillation technology to achieve nearly zero liquid discharge and resources recovery from seawater brine waste.	ANRF, India	2022	Completed	PI	29,18,000
3	Development of superhydrophobic and superomniphobic membranes for energy-efficient membrane distillation application with zero liquid discharge.	SRIC, IIT Roorkee	2020	Completed	PI	20,00,000
4	Advanced Computational and Machine Learning Approaches for Biofouling Control in Membrane Distillation	DST, India & Federal Ministry of Education, Science and Research, Austria	2025	Approved	PI	--
5	Strengthening the S&T Infrastructure for molecular characterization and quantification	DST, India	2024	Ongoing	PI	3,57,00,000

	of undetectable organic matter fractions in the environment					
6	Strengthening of Environmental Hydrology Lab	ICED	2023	Ongoing	PI	1,40,00,000
7	A method of fabrication of superhydrophobic & biodegradable nanocomposite Superhydrophobic membrane for application in membrane distillation	Technology Readiness Level Booster (TRLB), IITR	2024	Completed	PI	15,00,000
8	A superhydrophobic polystyrene/PVDF membrane coated with WO_3 nanocomposite for membrane distillation application	Technology Readiness Level Booster (TRLB), IITR	2024	Ongoing	PI	15,00,000
9	Development of advanced nanocomposite proton exchange membrane based fuel cells suitable for automobile applications	Schaeffler India	2022	Ongoing	Co-PI	73,85,000
10	Investigation of nanobubble flotation to remove micro/nano plastic from Sewage Treatment Works (STWs) in Hong Kong.	Environment and Conservation Fund, Govt of Hong Kong	2021	Completed	Co-PI	47,10,000
11	Capacity development programme on-site suitability mapping for managed aquifer recharge (MAR) under varying climatic conditions using remote sensing and machine learning-based hydrological modelling tools.	APN Capacity Development Programme (CAPaBLE) programme	2021	Completed	Co-PI	24,30,000
12	Novel hybrid gas hydrate-membrane based desalination coupled with carbon capture	Ministry of Earth Sciences, Govt. of India	2025	Ongoing	Co-PI	58,90,000

18. Significant accomplishments & Outreach activities

S. No	Title	Sponsoring Agency and Officer Concerned	Period	Amount
1	"SuWaRec: Securing sustainable treatment for drinking water production and water recycling with focus on anionic contaminants". Coordinators: Dr. Bhaskar Jyoti Deka (IIT Roorkee, India) and Prof. Dr.-Ing. Mathias Ernst (Hamburg University of Technology, Germany). Venue: Hamburg University of Technology, Germany	Indo-German Science & Technology Centre (IGSTC)	20-22nd July 2022	€ 36,535 (₹30,36,306)

2	Course coordinator of International e-ITEC course on "Emerging technologies for water/wastewater treatment"	Indian Technical & Economic Cooperation Programme, Ministry of External Affairs, Govt. of India.	28-30th November 2022	₹1,25,000
3	Exhibitor (IIT Roorkee) at International Engineering Sourcing Show (IESS) exhibition	IESS, Chennai	16-18th March 2023	-
4	Coordinator of the international workshop on "Membranes Technologies for Desalination, Energy and Water Sustainability (MemDEW)"	ANRF, Govt of India	18-20th October 2023	₹2,50,000
5	Coordinator of the international workshop on "Fostering Deep Membrane Science Research for Desalination, Brine Reclamation, and Resource Extraction (MemSci-Brine)".	ANRF, Govt of India	4-6th December 2024	₹2,50,000
6	International Membrane Day *(A Tribute to Prof. Enrico Drioli)*	Advanced Membrane Research Lab, Department of Hydrology, IIT Roorkee	14th April 2025	-
7	"SHINE: Sustainable Handling of Innovative Membrane Technologies for Environmental Protection" will be conducted in September 2025. Coordinators: Dr. Bhaskar Jyoti Deka (IIT Roorkee, India) and Dr. Volkan Filiz (Institute of Membrane Research, Helmholtz-Zentrum Hereon, Germany). Venue: Hamburg University, Germany.	Indo-German Science & Technology Centre (IGSTC)	22-25th September 2025	-

19. Declaration

I hereby declare that all entries in this form are true to the best of my knowledge and belief.

Signature:
Name: Bhaskar Jyoti Deka
Place: Roorkee, India
Date: 8th June 2026