Name	:	Dr. Parag R. Nemade
Designation	:	Associate Professor
Organization	:	Institute of Chemical Technology, Mumbai
		Department of Chemical Engineering
Address	:	Nathalal Parekh Marg, Mumbai, India. PIN: 400 058
Email	:	pr.nemade@ictmumbai.edu.in and pr.nemade@gmail.com
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Specialization and Expertise

Membrane separation processes, new materials, sustainability engineering and ESG, new catalyst development,

Awards and Distinctions

1. Chevening-Rolls Royce Science, Innovation and Leadership Fellowship, (administered by UK Foreign and Commonwealth Office), 2016
2. DAE Young Scientist Award, 2015

Details of Professional Experience

1. Institute of Chemical Technology (Jan 2011-present)

Designation: Associate Professor, Department of Chemical Engineering, ICT, Mumbai (Jun 2022-present)
Designation: Deputy Director, ICT Marathwada Campus, Jalna (Aug 2018-Jun 2025)
Designation: UGC Assistant Professor in Engineering Sciences, Department of Chemical Engineering, and Department of Oils, Oleochemicals and Surfactant Technology, (August 2013-Jun 2022)
Deputy Director, ICT Marathwada Campus, Jalna (Aug 2018-present)
Designation: DAE-ICT Scientist A, Department of Chemical Engineering, (Jan 2011- July 2013)

a. Teaching undergraduate students, postgraduate students, guiding final year bachelor's students in final year seminar and project, guiding Master's and Doctoral students
b. Subjects taught: Chemical Engineering Operations, Advanced Separation Processes, Chemical Engineering Laboratory, Nanotechnology and its applications, Advanced Membrane Separations, Advanced Momentum Transfer, Mathematical Methods in Chemical Engineering, Introduction to Chemical Engineering, Chemical Engineering Thermodynamics-1, Material and Energy Balance Calculations, Momentum Transport
c. Students guided:

Masters:	32 (completed)	02 (ongoing)
Ph.D.:	08 (completed)	05 (ongoing)

d. Performing research on membrane separations, desalination, catalysis, and sustainability engineering by developing new applications of industrial by-products

Publications (32)

(International)

1. Gonsalves, O. S., and Nemade, P. R., A Fe-MOF/CTF hybrid as photoanode for photo-electrochemical degradation of Procion Brilliant Purple- H3R, Sep. Sci. Tech., in press
2. Bajpai, S. and Nemade, P. R., Silane and fluorine free facile hydrophobicization of water hyacinth biomass for oil-water separations, Chemosphere, 2024, 358, 142164.
3. Bajpai, S. and Nemade, P. R., Valorisation of environmental menace "water hyacinth" biomass for extraction of valuable metabolites and as high-performance adsorbent, Biomass and Waste Valorization, 2025, 16, 2897-2915.
4. Gonsalves, O. S., and Nemade, P. R., Ultrafast adsorption of hexavalent chromium from aqueous effluents using

covalent triazine frameworks, Chemosphere, 2024, 351, 141246.
5. Bhoje, R. S., Ghosh, A. K., and Nemade, P. R., Functionalized graphene-based material as a nanofiller for high-performance thin film composite seawater reverse osmosis membrane, Sep. Sci. Tech., 2024, 58:15-16, 2790-2805
6. Vaishnavi, P. S. V., Kar, Soumitra, Adak, A. K., Nagar, Vandan, Singh, Vishal, Debnath, A. K., Nemade, P. R., Surface Modification of Thin Film Composite Nanofiltration Membrane with Graphene Oxide by varying amine linkers: Synthesis, Characterization, and Applications, J. Membr. Sci., 2023, 687, 122021
7. Bajpai, S., Nemade, P. R., An integrated biorefinery approach for the valorisation of water hyacinth towards circular bioeconomy: A review, Environ. Sci. Pollution Res, 2023, in press
8. Zambare, R. S., Song, X., Bhuvana, S., Tang, Chuyang, Antony Prince, J. S., Nemade, P. R., Ionic liquid reduced graphene oxide membrane with enhanced stability for water purification, ACS Appl. Mater. Interfaces, 2022, 14, 38, 43339–43353.
9. Gonsalves, O. S., Ambre, J. P. and Nemade, P. R., Improving yield of graphene oxide catalysed n-heterocyclization of amines through fed batch mode, New J. Chem., 2022, 46, 17410 - 17420.
10. Bhoje, R. S., Ghosh, A. K., and Nemade, P. R., Development of performance enhanced graphene oxide based nanostructured thin-film composite seawater reverse osmosis membranes, ACS Appl. Polym. Mater., 2022, 4, 2149-2159.
11. Sane, P. K., Rakte, D., Tambat, S., Bhalinge, R., Sontakke, S. M., and Nemade, P. R., Enhancing solar photocatalytic activity of Bi_5O_7I photocatalyst with activated carbon heterojunction, Adv. Powder Tech., 2022, 33, 103357.
12. Chaudhari, S. M., Gonsalves, O. S., Nemade, P. R., Enhanced photocatalytic degradation of Diclofenac with AgI/CeO_2: A comparison with Mn, Cu and Ag-doped CeO_2, Mater Res Bull., 2021, 143, 111463.
13. Zambare, R. S. and Nemade, P. R., Ionic liquid-modified graphene oxide sponge for hexavalent chromium removal from water, Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2021, 609, 125657.
14. Nemade, P. R., Ganjare, A. V., Ramesh, K., Rakte, D., Vaishnavi, P. S. V., Thapa, G., Low fouling sulphonated carbon soot-polysulphone membranes for rapid dehydration of stabilized oil-water emulsions, J. Water Proc. Eng., 2020, 101590.
15. Zambare, R. S., Dhopte, K. B., Nemade, P. R., Tang, C. Y., Effect of oxidation degree of GO nanosheets on microstructure and performance of polysulfone-GO mixed matrix membranes, Sep. Purif. Tech., 2020, 244, 116865.
16. Ambre, J. P, Dhopte, K. B., Nemade, P. R., Dalvi, V. H., High-flux hyperbranched starch-graphene oxide piperazinamide composite nanofiltration membranes, J. Environ. Chem. Eng., 2019, 7, 103300.
17. Dhopte, K. B., Mohanapriya, K., Jha, N., Nemade, P. R., Enhanced electrochemical performance of hyperbranched poly(amidographene), Energy Storage Materials, 2019, 16, 281-289.
18. Sane, P. K., Tambat, S., Sontakke, S. M., Nemade, P. R., Visible light removal of reactive dyes using CeO_2 synthesized by precipitation, J. Environ. Chem. Eng., 2018, 6, 4476-4489.
19. Chaudhari, S. M., Gaval, P. M., Sane, P. K., Sontakke, S. M., Nemade, P. R. Solar light assisted photocatalytic degradation of methylene blue with Mo/TiO_2: A comparison with Cr and Ni doped TiO_2, Res Chem. Int., 2018, 44 (5), 3115-3134.
20. Sane, P., Chaudhari, S., Nemade, P., Sontakke, S., Photocatalytic reduction of chromium (VI) using combustion synthesized TiO_2, J. Environ. Chem. Eng., 2018, 6, 68-73.
21. Chaudhari, S., Sane, P., Nemade, P., Sontakke, S., Photocatalytic degradation of xylene milling yellow dye with commercial Aeroxide® catalyst, Ferroelectrics, 2017, 519, 115-124.
22. Dhopte, K. B., Zambare, R. S., Patwardhan, Anand V. and Nemade, P. R., Role of degree of oxidation of graphene oxide for catalysing Biginelli reaction, ChemistrySelect, 2017, 2, 10997-11006.
23. Zambare, R. S., Song X., Bhuvana, S., Prince, J. S. A., Nemade, P. R. Ultrafast Dye Removal Using Ionic Liquid–Graphene Oxide Sponge, ACS Sust. Chem. Eng., 2017, 5, 626-6035.
24. Zambare, R. S., Dhopte, B. B., and Nemade, P. R. Polyamine functionalized graphene oxide polysulfone mixed matrix membranes with improved hydrophilicity and anti-fouling properties, Desalination 2016, 403 (2017) 24–35.

25. Dhopte, K. B., Zambare, R. H., Patwardhan, A. V., and Nemade, P. R. Role of graphene oxide as heterogeneous acid catalyst and benign oxidant for synthesis of benzimidazoles and benzothiazoles, RSC Adv. 2016, 6, 8164-8172.
26. Bhutada, P. R., Jadhav, A. J., Pinjari, D. V., Nemade, P. R., Jain, R. D., Solvent assisted extraction of oil from Moringa oleifera Lam. Seeds, Ind. Crop. Prod. 2016, 82, 74-80.
27. Kadam, M. M., Dhopte, K. B., Jha, N., Gaikar, V. G., and Nemade, P. R. Synthesis, characterization and application of γ-MnO_2/graphene oxide for the selective aerobic oxidation of benzyl alcohols to corresponding carbonyl compounds, New J. Chem. 2016, 40, 1436-1442.
28. Dhopte, K.B., Raut, D.S., Patwardhan, A.V., and Nemade, P.R. Graphene Oxide as Recyclable Catalyst for One-Pot Synthesis of α-Aminophosphonates. Synth. Commun. 2015, 45, 788–798.
29. Sanap, D.B., Kadam, K.D., Narayan, M., Kasthurirangan, S., Nemade, P.R., and Dalvi, V.H. Analysis of saline water desalination by directed solvent extraction using octanoic acid. Desalination 2015, 357, 150–162.
30. Zhou, M., Nemade, P. R., Lu X., Zeng, X., Hatakeyama, E., Noble, R. D., Gin, D. L., "A New Type of Membrane Material for Water Desalination Based on a Cross-linked Bicontinuous Cubic Lyotropic Liquid Crystal Assembly," J. Am. Chem. Soc. 2007, 129, 9574-9575.
31. Gin, D. L., Lu X., Nemade, P. R., Pecinovsky, C. S., Xu, Y., Zhou, M., "Recent Advances in the Design of Polymerizable Lyotropic Liquid Crystal Assemblies for Heterogeneous Catalysis and Selective Separations" Adv. Funct. Mater. 2006, 16, 865–878.
32. Nemade, P. R., and Davis, R. H., "Secondary Membranes for Flux Optimization in Membrane Filtration of Biological Suspensions", Appl. Biochem. Biotechnol. 2004, 113, 417-432.

(National)

1. Waval, A. S., Patel, P., Nemade, P. R., Mathpati, C. S., Experimental studies in antisolvent crystallization: Effect of antisolvent ratio and mixing patterns, Ind. J. Chem. Tech., 2020, 27, 18-25.

Cumulative Impact Factor: 195.941 (2021); h-index: 15; i-10 index: 17; Citations: 1150

Patents (Granted: 17 (utility+Design); Applied: 6)

(Granted)

1. Nemade, P. R., Gaikar, V. G., Jha, N., Dhopte, K. B., Kadam, M. M., Novel nanocomposites of γ-MnO_2 supported on graphene oxide used as a catalyst, 2014, Indian Patent No.: 315240.
2. Nemade. P. R., Waghmode, A., T., Novel method for preparation of multipurpose grease from sustainable feedstock and composition thereof, 2015, Indian Patent No.: 330049.
3. Sarode, D. D., Nemade, P. R., Dalvi, V. H., Sontakke, S. M., Zambare, R. H., Mukadam, N. V., Baviskar, U. K., A water-resistant phosphogypsum composition, 2014, Indian Patent No. : 336119.
4. Mathpati, C S., Waval, A. S., Dalvi, V. H., Nemade, P. R., Improved agitation system for effective temperature utilization in a reactor, 2017, Indian Patent No.: 370960
5. Nemade. P. R., Ambre, J. P., Dhopte, K. B., High flux starch functionalized graphene oxide thin film composite nanofiltration membrane, 419017.
6. Nemade, P. R., Haral, S. S., Baviskar, S. S., Photocatalytic Reactor, 396062-001 (Design).
7. Sandeep Sampatrao Haral, Parag Ramesh Nemade, Dhruti Rakte, Solar Cloth Dryer, 402023-001 (Design).
8. Nemade, P. R., Rakte, Dhruti., Haral, S. S., Sample holder for electrochemical corrosion investigation, 386816-001 (Design).
9. Nemade, P. R., Haral, S. S., Mahajan, L. C., Shaikh, F. F., Vapour phase reactor for catalyst synthesis, 397459-001 (Design).
10. Haral, S. S., Nemade, P. R., Gavhale, B. S., Navale, J. M., Kale, M. D., Chakve, R. D., Gujar, G. R., Raut, V. C., More, M. M., Gholve, S. B., Solar Dryer, 397520-001 (Design).

11. Sandeep Sampatrao Haral, Parag Ramesh Nemade, Sandeep Laxman Hake, Laboratory Sink, 401523-001 (Design).
12. Sandeep Sampatrao Haral, Parag Ramesh Nemade, Laboratory Sink, 402024-001 (Design).
13. Dhruti Rakte, Parag Ramesh Nemade, Sandeep Sampatrao Haral, FTO Glass Electrode with Holder, (Design).
14. Sarang Subhashchandra Shindalkar, Omkar Prakash Shetye, Sandeep Sampatrao Haral, Parag Ramesh Nemade, Self Activation Pyrolytic Reactor, (Design).
15. Parag Ramesh Nemade, Sandeep Sampatrao Haral, Ultrasound Reactor (Design).
16. Parag Ramesh Nemade, Sandeep Sampatrao Haral, Vapor phase reactor for nanoparticle synthesis (Design).
17. Parag Ramesh Nemade, Sandeep Sampatrao Haral, Dhruti Mallikarjun Rakte, Photoelectrochemical Cell (Design).

(Filed)

1. Nemade, P. R., Ambre, J. P., Raheman, S., Jha, N., Metal nanoparticles embedded tire char for high capacity supercapacitor, 201921033661.
2. Mathpati C. S., Waval A. S., Dalvi V. H., Nemade P. R., "System for Circulation of Liquid and Slurry in Reactor", Application No.201721029923 A (Published on 26/04/19 Under examination).
3. Nemade, P. R., Dhopte, A. M., Dhopte, K. B., Zambare, R. S., An improved method for the synthesis of ionic liquid functionalized PSf membrane incorporated graphene oxide for CO2/N2 separation, 201921038111.
4. Nemade, P. R., Gonsalves, O. S., Process for removal and concentration of heavy metals from aqueous solutions and effluents using covalent organic frameworks, Application No. 202321036064, (Published on 24/11/2023 Under examination).
5. Nemade, P. R., Gonsalves, O. S., Process for the removal of hexavalent chromium from aqueous solutions and effluents using covalent organic frameworks by photocatalysis, Application No. 202321079991, (Published on 24/11/2023 Under examination).
6. Nemade, P. R., Bajpai, S., A silane and fluorine free hydrophobic material from biomass and process for its production, Application No. 202321078914.

Book Chapters (4)

1. Gonsalves, O. S., Zambare,R. S., and Nemade, P. R., Membrane processes in food processing: Introduction, types, and application in, Research on Food Process Engineering and Applications, ed. Goyal, M. R. and Watharkar, R. B., Apple Academic Press, 2020.
2. Zambare, R. S., and Nemade, P. R., Graphene and its derivatives for environmental applications in, Functionalized Nanomaterials based Devices for Environmental Applications, ed. Hussain, C. M., Shukla, S. K., Joshi, G. M., Elsevier, 2020.
3. Zambare, R. S. and Nemade, P. R., Polymer Nanocomposite Membranes for Wastewater Treatment, in Handbook of Nanomaterials for Wastewater Treatment: Fundamentals and Scale up issues, ed. Bhanvase, B. A., Sonawane, S. H., Pawade, V. B., Pandit, A. B., Elsevier, 2020.
4. Bhoje, R. S., and Nemade, P. R., Polymer Nanogenerators, in Polymers in Energy Conversion and Storage, ed. Inamuddin, CRC Press, 2021, ISBN: 9781003169727.

List of projects implemented/completed

- Arsenic Stabilization in Copper Smelter Sludges
- Development of Quality Water Resistant Gypsum Plaster
- Development of catalyst for conversion of methane to olefins
- Hygienic Water-free Toilet

- Development of ionic liquid-based membranes for separation of CO_2 from natural gas
- Development of graphene oxide-based membranes for reverse osmosis
- Development of Organic Solvent Nanofiltration Membranes
- Development of Natural esters for high dielectric applications
- Graphene based high-performance material for water desalination
- Corrosion resistance of steel rebars
- Improving profitability of sugarcane industry
- Banana pseudostem valorization
- Process intensification of lactic acid production

List of companies' consultation given

- Aether
- Calyx
- Canton Laboratories
- Chemtron
- Crown Chemicals
- DRT Anthea
- GAIL (India) Ltd.
- Galaxy Surfactants
- Garware Polyester Ltd.
- Maharastra State Power Generation Company
- Mrib Chemicals
- Parson Industries
- PEC Consulting
- Raj Petro Specialities Pvt. Ltd.
- RCF Ltd.
- Shanpar
- Standard Surfactants
- Sterlite Industries Ltd.
- Harman Finochem Ltd.

Technology development/translation/initiation

1. Phoshphogypsum based plaster for exterior walls, being commercialized by Rashtriya Chemicals and Fertilizers Ltd.
2. Transformer Oil from natural esters (Raj Petro Specialties Pvt. Ltd.)
3. Separation of mixed acid waste from xylene oxidation (Jayraj Industries)
4. Production of dioctyl terephthalate (Jayraj Industries)

Educational Qualifications

S.No.	Degree	University	Year	Subjects
1.	Ph. D.	University of Colorado, Boulder	2008	Chemical Engineering
2.	M.S.	University of Colorado, Boulder	2007	Chemical Engineering
3.	B. Chem. Eng.	UDCT, University of Mumbai	2001	Chemical Engineering