

Updation of SVU website

Dr. Somendra Nath Roy, PhD, Post Doc Fellow, FIICer

Present Position: Visiting Professor

Address: Department of Civil Engineering, School of Engineering & Technology
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Education:

- Post Doc Fellow (Technische Universitat, Berlin, Germany, 1987-1990)
- PhD (Jadavpur University, 1989)
- M.Sc. (Jadavpur University, 1979)
- B.Sc. (Jadavpur University, 1975)

Research Key Areas:

- Ceramic Technology
- Material Science
- Applied Geology
- Advanced Separation Science & Technology
- Membrane Bioreactor
- Catalytic Membrane Reactors
- Nanotechnology
- Environmental Engineering

Research Highlights:

- Low cost Ceramic Membranes & Membrane Based Separation Process
- Waste to Wealth
- Single Layer Ceramic UF Membrane up to 1 meter length (planned for Tie-up with Industry)
- Ceramic microfiltration (MF) and Brakish water reverse osmosis (BWRO) plants installed in Nischinda Village, Bally, Howrah district, West Bengal on August 2008 for distribution of potable water within the community.
- Commissioned the First Ceramic MF- RO Plants (80,000 LPD) for turbid / saline river water (Ichhamati) purification at Taki, 24-Pgs (N), West Bengal under DST funded project and inaugurated by Dr. Srikumar Banerjee, Chairman, CSIR-CGCRI Research Council and Chairman, DAE, GoI on September 29, 2012 and finally handed over to the Chairman, Taki Municipality for distribution of potable water.

- A process has developed in bench scale as well as from pilot trial at industry for simultaneous removal of gum, wax & Free Fatty Acid (FFA) as well as color to the extent of 80-85% gum, wax & FFA and 55% color respectively using indigenously developed low cost clay-alumina based ceramic MF membrane. 95-98% reduction of phospholipids using ceramic membrane would be a great impact in vegetable oil industries which has been projected in the 12th FYP.
- Ultrafiltration Ceramic Membrane Prototype developed with costing Rs.25,000/-.
- **S. N. Roy** -- Received **Best Faculty Award** from Adamas University in 2019.
- 18 Entrepreneurs set up Iron Removal plants (2500-5000 LPD) under SSI sector with Self/Bank Financing in North 24 Pgs., Murshidabad & Dakshin Dinajpur Districts of West Bengal; Tripura, Assam and Meghalaya
- Employment generation of about 128 persons for plant operation and door delivery of quality drinking water to the consumers in rural area.
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Experience:

- Professor Emeritus, Adamas University, Kolkata, India since Nov'2018.
- Adjunct Professor, Amity University, Kolkata, India, 2015-2018
- Visiting Professor, OmDayal Group Institution, Uluberia, India, 2014-2016
- Visiting Professor, Bankura Unnayani Institute of Technology, India, 2014-2015
- Post Doc Fellow, Technische Universitat, Berlin, Germany, 1987-1990
- Scientist B to Chief Scientist & Head, Ceramic Membrane Division, CSIR-CGCRI, GoI, Kolkata, India, since 1983 - 2013
- Senior Research Fellow, CSIR-CGCRI, GoI, Kolkata, India, 1981-1983

Research Publication (s)

- Number of research papers published in International refereed journals: 42
- Number of research papers published in National peer-reviewed Scopus Journal: 06
- Number of Book-Chapters: 04

For Details, Visit: <https://vidwan.inflibnet.ac.in/profile/161983>

Selected Publication (s): (MAXIMUM 12)

1. Mitali Sen, Ankita Bose, Jugal K. Das, **Somendra N. Roy**, Nandini Das and Sibdas Bandyopadhyay, "Membrane Synthesized from Microemulsion-derived Ilmenite Nano Powders Used for Removal of Red Dye from Textile Industry", Int. J. Appl. Ceram. Technol., 1-11 (2016) DOI:10.1111/ijac.12524
2. Swachhha Majumdar, Subhendu Sarkar, Sourja Ghosh, Priyankari Bhattacharya, S. Bandyopadhyay, Amrita Saha, Sayantika Mukherjee, Dipanwita Das, G. L. Sharma and **S. N. Roy**, (2018) "New Trends for Wastewater Treatment and Their Reuse Using Ceramic Membrane Technology: A Case Study", In: Singh V. P., Yadav S., Yadava R. (eds) Water Quality Management, Water Science

and Technology Library, **Vol.79**, page 339-348, DOI: [10.1007/978-981-10-5795-3_29](https://doi.org/10.1007/978-981-10-5795-3_29), Springer, Singapore (Online ISBN:978-981-10-5795-3).

3. Surajit Dey, Priyankari Bhattacharya, Sibdas Bandyopadhyay, **Somendra N. Roy**, Swachchha Majumdar, Ganesh C. Sahoo, “Single Step Preparation of Zirconia Ultrafiltration Membrane over Clay-Alumina Based Multichannel Ceramic Support for Wastewater Treatment”, *Journal of Membrane Science and Research*, Vol. 4 (2018) 28-33. [doi.org/10.22079/JMSR.2017.58311.1126].
4. Sagar Chowdhury, Abhishek Roy and **S. N. Roy**, “Gas Leakage Detection and Control from Remote Location using IoT Technology”, *International Journal of Emerging Technology and Advanced Engineering (IJETAE)*, Vol. 9 [6], June 2019, pp. 56-61. [ISSN: 2250 – 2459 (Online)].
5. Surajit Dey, **Somendra Nath Roy**, Swachchha Majumdar, Sourja Ghosh and Ganesh C. Sahoo, “Dispersion Study of Zirconia Nano-Powders Using Dolapix CE64 and M65 Dispersant to Develop UF Membrane over Novel Clay-Alumina Based Ceramic Support for Water Treatment”, *Trans. Ind. Ceram. Soc.*, vol. **78** [4], **2019**, pp. 187-194. [doi.org/10.1080/0371750X.2019.1671233].
6. **S. N. Roy**, Ananya Pal, Snita Das, Purbasha Saha, Soham Dutta and Mainak Ganguly, “Fuel Oil from Thermolysis of Waste Plastic: A pathway from Waste to Energy”, *J. Waste Management and Disposal*, **Vol. 5 (1)**, **2022**, pp.103. [ISSN: 2641-8827].
7. Brahma, N. K., Mahapatra, A., **Roy, S. N.** and Basu, Sarajit (2022), “Cake and Membrane Filtration in Mitigating Global Water Demand”, In: Yadav, S., Negm, A. M., Yadava, R. N. (eds) *Wastewater Assessment, Treatment, Reuse and Development in India*. Earth and Environmental Sciences Library. Springer, Cham. https://doi.org/10.1007/978-3-030-95786-5_3.
8. Bhattacharya, A. K., **Roy, S. N.** (2022), “Wastewater Management and Treatment Technologies with Recycling and Reuse Issues in India Leading to Zero Liquid Discharge (ZLD)”. In: Yadav, S., Negm, A. M., Yadava, R. N. (eds) *Wastewater Assessment, Treatment, Reuse and Development in India*. Earth and Environmental Sciences Library. Springer, Cham. https://doi.org/10.1007/978-3-030-95786-5_7.
9. Ramrakhiani, L., Ghosh, S., Majumdar, S., **Roy, S. N.** (2022), “Biosorptive Removal of a Herbicide, Glyphosate Using Waste Activated Sludge of Tannery Industry”. In: Yadav, S., Negm, A. M., Yadava, R. N. (eds) *Wastewater Assessment, Treatment, Reuse and Development in India*. Earth and Environmental Sciences Library. Springer, Cham. https://doi.org/10.1007/978-3-030-95786-5_11.

10. B. Roy, G. C. Sahoo, **S. N. Roy** and S. Bandyopadhyay, "Degumming, dewaxing and deacidification of rice bran oil-hexane miscella using ceramic membrane : Pilot plant study", J. Am. Oil. Chems. Soc., Vol.91 [8], 2014, pp. 1453-1460;[doi.org/10.1007/s11746-014-2473-7].
11. Mitali Sen, Ankita Bose, Pamei Pal, Jugal K. Das, **Somendra N. Roy** and Nandini Das, "Rapid Synthesis of DDR Zeolite at room temperature" , J. Am. Ceram. Soc., 2014, 97, 52-55.
12. Ganesh C Sahoo, **Somendra Nath Roy** and Sibdas Bandyopadhyay, "Solvent-coating powder interaction and permeability of coated clay-alumina membrane", International Journal of Scientific Engineering and Technology, Vol.2 (8) 806-809, 2013.

Research Projects: Total Grant: 506.65 Lakhs (till date)

Research Project Submitted to MNRE (18/01/2025): Rs. 1.8 crores

Research Patents:

- i) "A process for preparing water having an arsenic level of less than 10 PPB"- US patent No.7014771, Filing Date: 29/03/2002; Grant Date: 21/03/200
- ii) Sibdas Bandyopadhyay, Dipali Kundu, **Somendra Nath Roy**, Bishnupada Ghosh and Himadri Sekhar Maiti, "Apparatus for the preparation of arsenic free water" - US patent No.7309425, Filing Date: 15/08/2005; Grant Date:18/12/2007
- iii)"A process for the preparation of arsenic free water, apparatus therefor, method for manufacture of porous ceramics for use to produce arsenic free water" Patent in India (231768, dated 2002), Bangladesh (BD5912002, dated 28.03.2002), Chili (CL605-2002 dated 28.03.2002), Taiwan (TW91106287 dated 29.3.2002)
- iv)**Somendra Nath Roy**, Bishnupada Ghosh, Sibdas Bandyopadhyay and Himadri Sekhar Maiti,"A Process for making porous ceramics for pressure filtration", Indian Patent No. 231616, Filing Date: 25/05/1998; Grant date:18/02/2002.
- v) **Somendra Nath Roy**, Sandeep Sarkar, Ganesh Chandra Sahoo, Sophie Cerneaux, Andre Larbot and Sibdas Bandyopadhyay,"A process of making single layer ultra filtration membranes inside clay-alumina porous tubular support", Indian Patent No. 321677, Filing Date: 07/12/2012; Grant Date:27/09/2019.
Also applied patent for US, Germany, France, China and Japan and submitted to IPR Cell, CSIR-HQ, New Delhi.

Research Advisor / Supervisor:

- Doctoral Thesis Advisor / Supervisor : 03 (Awarded)
- Member of Doctoral Committee: 03
- Post Graduate Thesis Advisor / Supervisor: 08 (Awarded)
- Post Graduate Thesis Advisor / Supervisor: 03 (to be Awarded)

Award/ Academic Recognition: (MOST IMPORTANT ACTIVITIES ONLY In bullet format)

- (i) 2nd prize in the 5th European Photomicrographic Competition on Martensitic Transformation, held at Frankfurt, Germany, July14-18,1989.
- (ii) One of the SEM photographs published in a research paper entitled “Crystal growth of Bi₂Sr₂CaCu₂O₈ superconductors by self flux method”, by **S. N. Roy**, P. Sujatha Devi, R. N. Basu and H. S. Maiti : has appeared on the cover page of J. Mater. Sci. Letts.,13 (1994).
- iii) Awarded Post Doc fellow at Hermann-Föttinger Institut, Technische Universität, Berlin, Germany (1987-1990).
- iv) Awarded 2nd prize for the paper entitled on “Removal of colour from rice bran oil miscella in Lab scale” at the International Seminar on Innovations in Oils, Fats & Allied products towards sustainability & Lipids Expo 2011, November 18-19, 2011 at IICT, Hyderabad.
- vi) Ceramic Membrane Division Group received “CSIR-CGCRI Diamond Jubilee Award” for Best Technology (April, 2011 - March, 2012) on pre-treatment of turbid water and polishing of iron and arsenic contaminated water using ceramic micro-filtration technique.
- v) Ganesh C. Sahoo, Biswajit Roy, Surajit Dey, Swachchha Majumdar, **Somendra Nath Roy** and Sibdas Bandyopadhyay, Ceramic Membrane Division, received RBGV Swaika Memorial Award (Team award for applied research) during 70th Annual Convention of Oil Technologists' Association of India (OTAI) held at CSIR-CGCRI, Kolkata during 21-22nd November 2015 for the work on 'Technology Development for Refining of Rice Bran Oil Miscella using Ceramic Microfiltration Membrane'.
- vi) Kunal Das, Saptarshi Sikdar and **S. N. Roy**, “Environmentally Benign Future Technology for CO₂ Capture, Storage and Transportation”, - Oral Presented at the National Seminar on Materials and Devices (NCMD-2018)”-Organized by School of Basic Sciences & Research, Sarada University, Greater Noida-201310, India, held during July 31-August 01, 2018 and **Awarded for best oral presentation.**
- vii) Surajit Dey, **Somendra Nath Roy**, Swachchha Majumdar, Sourja Ghosh and Ganesh C. Sahoo, “Dispersion Study of Zirconia Nano-Powders Using Dolapix CE64 and M65 Dispersant to Develop UF Membrane over Novel Clay-Alumina Based Ceramic Support for Water Treatment”, Indian Ceramic Society, **78(4)**, 187-194 (2019) – Selected for **Malaviya Award – 2022.**

Major Professional Activity:

- i) Member, Management Council of CG&CRI : 1996-1999
- ii) Life Member, Indian Membrane Society : Since 1996

- iii) Life Member, Indian Association for the Cultivation of Science : Since 1994
 - iv) Life Member, Indian Ceramic Society : Since 2004
 - v) Life Member, Oil Technologists' Association of India : Since 2000
 - vi) Fellow, Indian Institute of Ceramics : Since 2008
 - vii) Life Member, Institute of Engineers' India : Since 2014
 - viii) Member, Academic Council, Adamas University : Since 2020
 - ix) Member in the AU Centre for Material Research (CMR) : Since May
- 2021
- x) Member, of Departmental Student Grievance Redressal : Since
- Oct'2020
- Committee (DSGRC) for School of Liberal Arts and Culture Studies (SOLACS)
- xi) Member, International Association for Water, Environment, Energy & Society (IAWEES) : Since 2020
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