

Arindom Bikash Neog

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Dergaon Kamal Dowerah College
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Date of Joining: 21-08-2021
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**Education**

2015-2017 Master of Science in Chemistry, Tezpur University, Assam
Specialization: Organic Chemistry
Project Supervisor: Dr. Utpal Bora, Professor, Department of Chemical Sciences, Tezpur University, Assam, India.
2012-2015 Bachelor of Science in Chemistry, D.K.D. College under Dibrugarh University
2010-2012 Higher Secondary in Science, D.K.D. College, Assam, India.
1998-2010 Don Bosco High School, Dergaon, Assam

Research

July 2017 – Feb 2025 PhD from Indian Institute of Technology, Guwahati.
Thesis Title Application of Responsive Lamellar Membranes of Layered Materials for Microdroplet Handling, Sensing, and Energy Harvesting
PhD Supervisor Dr. Kalyan Raidongia, Associate Professor, Department of Chemistry, Indian Institute of Technology, Guwahati, Assam, India.
Research Interest 2D Layered Materials, Smart Materials, Nanomaterials, Nanofluidics, Water Treatment and Energy Harvesting.

Qualifications

- NET Chemical Sciences (2016 and 2017)
- GATE Chemistry (2017)
- SLET Chemical Science (2018)
- IIT-JAM Chemistry (2015)

Awards

- Gold Medal in Master of Science (Chemistry), Tezpur University, 2017
- First class First with Distinction in Bachelor of Science (Chemistry) under Dibrugarh University, 2015
- Post-Graduate Merit Scholarship for University Rank Holder, 2015-16
- 20th rank in HSLC examination, SEBA, 2010

Experiences

- Operator of Atomic Force Microscope (AFM) at Central Instruments Facility, Indian Institute of Technology for the period from August 2018-August 2021

- Experience of operating UV-Visible Spectrophotometer, Fluorescence Spectrophotometer, FTIR Spectrophotometer, Digital Sourcemeter, Bench-Top Powder X-ray Diffractometer, Zetasizer, Microwave Reactor, High Performance Liquid Chromatography, Universal Testing Machine.

Seminars/Conferences attended

1. Poster presentation entitled “*Tailor-cut Nanofluidic Characteristics of Vanadium Pentoxide Ion-Channels*” in the International conference on Frontiers in Chemical Sciences (FICS-2018) organised by Indian Institute of Technology, Guwahati.
2. Poster presentation entitled “*Two-dimensional Ion- pump of Vanadium Pentoxide Nanofluidic Membrane*” in the International Conference "Chemistry and Physics of Materials: Glorious Past and Exciting Future", scheduled during February 20 to 22, 2019 organised by Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru.
3. Poster presentation entitled “*Stimuli responsive bilayer membrane of reduced graphene oxide and agar*” in the National Conference on 'Recent Advances in Chemistry 2019' (RAC-2019) organised by Department of Chemistry, NIT Meghalaya.
4. Poster presentation entitled “*Hydrophobic reduced graphene oxide and agar-based bilayer membrane*” in the International e-Poster Conference on Current Outlook in Material Science and Engineering (COMSE-2k20) from 15-16th of May 2020 Organized by Bodoland University in Association with Tripura University, ADP College, Nagaon & MIT Aurangabad on Facebook.
5. Poster Presentation entitled “*Multi responsive actuator based on reduced graphene oxide and agar*” in Emerging Trends in Chemical Sciences (ETCS-2020) conference from 13-15th of February 2020 organised by Department of Chemistry, Gauhati University.
6. Oral presentation in the International Conference on “Materials Chemistry and Catalysis” (Virtual Mode) organized by Department of Chemical Sciences, Tezpur University, Assam, India during 4th & 5th of March 2021.
Title of Presentation: *Electrical Actuation of Hydrophobic Bilayer Membranes of Reduced Graphene Oxide and Agar for Inducing Chemical Reactions in Microdroplets*
7. Oral presentation in the National Level Seminar titled “Sustainability, Medicine and Clean Energy” Organized by Department of Chemical Sciences in collaboration with InSCIgnis, Tezpur University on 1st of March, 2022.
Title of the Presentation: *Tailor-cut Nanofluidic Characteristics of Vanadium Pentoxide Ion-Channels*
8. Poster presentation entitled “*Hydrophobic Reduced Graphene Oxide and Agar based Electrical Arms to Perform Chemical Reactions in Microdroplets*” in the International Conference on “Recent Advances in Materials Chemistry and Catalysis” during 1-3 March, 2023 organised by Department of Chemistry, Dibrugarh University.
9. Participated in ICSSR Sponsored National Seminar on “Role of Women in Developing North-East India in the Context of 21st Century” organised by Women’s cell, Dergaon Kamal Dowerah College, Dergaon during 6-7 October, 2023.
10. Poster presentation entitled “*Biomimetic remote handling and sensing devices of multiwalled carbon nanotubes and vanadium pentoxide*” in the International Conference on “Current Trends of Research in Chemistry Towards Sustainability, Health Care and Forensic Analysis (SusChemHeca-2024)” during 14-15 March, 2024 organised by Department of Chemical Sciences, Tezpur University.
11. Oral presentation entitled “*Biomimetic remote handling and sensing devices of multiwalled carbon nanotubes and vanadium pentoxide*” in the international seminar on ‘Interdisciplinary Approaches For A Sustainable World’ organized by CNB College, Bokakhat, Assam, India in collaboration with Bodoland University, Kokrajhar, Assam held on 6-7 January, 2025.

Workshops/others

1. Attended a Seven-Day Virtual Faculty Development Programme on “Recent Advances in Chemistry” held from Dec 27, 2021 to Jan 04, 2022 organised by Department of Chemistry, School of Sciences, RK University, Rajkot, Gujarat.
2. Attended a workshop on “Science, Society and Innovation” organised by Joya Gogoi College Teachers’ Unit and IQAC in collaboration with Golaghat Zonal Committee (ACTA) on 22nd of October, 2022.
3. Attended a UGC-sponsored online 'Faculty Induction Program' organized by Human Resource Development Centre, Aligarh Muslim University, Aligarh from 04 July 2022 to 06 August 2022.
4. Attended a one-day workshop on “Career Advancement Scheme (CAS) and Its Relevance in NAAC Accreditation” organised by IQAC, Government Model College, Deithor, Karbi Anglong on 7th of June, 2023.
5. Attended an International Workshop on 'Career Planning: Exploring the recent trends in the Ocean of Science' organized by the Department of Chemistry, Department of Geology & IQAC, Gargaon College, Simaluguri, Assam in collaboration with the Department of Applied Geology, Dibrugarh University, Assam on 8-9 June, 2023.
6. Attended a UGC-Approved Short-Term Professional Development Programme on 'Implementation of NEP-2020 for University and College Teachers' held from 12-20 June, 2023 under Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching organized by IGNOU.
7. Participated in the one-day National Webinar on 'Training/Orientation of Faculty on the Indian Knowledge System' organised by the North Eastern Hill University, Shillong on 9 February, 2024.
8. Participated in the three-day Faculty Improvement Programme on 'Climate Change, Biodiversity and Role of Biotechnology' at DKD College, Dergaon, Assam, organised by Institutional Level Biotech Hub, DKD College, Dergaon from 20-22 March, 2024.
9. Participated in the 2 weeks UGC sponsored online ‘Refresher course’ on Physical, Chemical and Material Sciences held from 18-30 Nov, 2024, organised by Himachal Pradesh University, Shimla, under UGC-MMTTC.

Publications

1. Sarmah, M., Neog, A. B., Boruah, P. K., Das, M. R., Bharali, P., & Bora, U. (2019). Effect of substrates on catalytic activity of biogenic palladium nanoparticles in C–C cross-coupling reactions. *ACS omega*, 4(2), 3329-3340.
Link: <https://pubs.acs.org/doi/10.1021/acsomega.8b02697>
2. Gogoi, R. K., Neog, A. B., Konch, T. J., Sarmah, N., & Raidongia, K. (2019). A two-dimensional ion-pump of a vanadium pentoxide nanofluidic membrane. *Journal of Materials Chemistry A*, 7(17), 10552-10560.
Link: <https://pubs.rsc.org/en/content/articlelanding/2019/ta/c8ta11233a>
3. Gogoi, R. K., Neog, A. B., Sarmah, N., & Raidongia, K. (2019). Preparation of responsive bilayer membrane through morphological tuning of nano-scale building blocks. *Journal of Materials Chemistry A*, 7(37), 21157-21167.
Link: <https://pubs.rsc.org/en/content/articlelanding/2019/ta/c9ta06957g/unauth>
4. Neog, A. B., Gogoi, R. K., Dutta, T., & Raidongia, K. (2020). Electrical Actuation of Hydrophobic Bilayer Membranes of Reduced Graphene Oxide and Agar for Inducing Chemical Reactions in Microdroplets. *ACS Applied Nano Materials*, 3(7), 6629-6635.
Link: <https://pubs.acs.org/doi/10.1021/acsnm.0c01063>
5. Deka, P., Verma, V. K., Yurembam, B., Neog, A. B., Raidongia, K., & Subbiah, S. (2021). Performance evaluation of reduced graphene oxide membrane doped with polystyrene sulfonic acid for forward osmosis process. *Sustainable Energy Technologies and Assessments*, 44, 101093.
Link: <https://www.sciencedirect.com/science/article/abs/pii/S221313882100103X>

6. Konch, T. J., Dutta, T., **Neog, A. B.**, Gogoi, R., & Raidongia, K. (2021). Uphill Anion Pumping through Triangular Nanofluidic Device of Reconstructed Layered Double Hydroxide. *The Journal of Physical Chemistry C*, 125(32), 17939-17949.
Link: <https://pubs.acs.org/doi/10.1021/acs.jpcc.1c03118>
7. **Neog, A. B.**, Gogoi, R. K., Deka, P., Konch, T. J., Bora, B. R., & Raidongia, K. (2021). Application of reduced graphene oxide-based actuators for real-time chemical sensing of liquid and vapour phase contaminants. *New Journal of Chemistry*, 45(36), 16883-16891.
Link: <https://pubs.rsc.org/en/content/articlelanding/2021/nj/d1nj02988f>
8. Deka, P., Verma, V. K., Chandrasekaran, A., **Neog, A. B.**, Bardhan, A., Raidongia, K., & Subbiah, S. (2022). Performance of novel sericin doped reduced graphene oxide membrane for FO based membrane crystallization application. *Journal of Membrane Science*, 660, 120884.
Link: <https://www.sciencedirect.com/science/article/abs/pii/S0376738822006299>
9. Deka, P., Roy, S., Konch, T. J., Bora, B. R., Gogoi, R., **Neog, A. B.**, & Raidongia, K. (2023). Recovering electrical energy from forward osmosis process through amorphous silicon oxide crosslinked vanadium pentoxide-reduced graphene oxide membrane. *Chemical Engineering Journal*, 469, 143964.
Link: <https://www.sciencedirect.com/science/article/pii/S1385894723026955>
10. Saikia, P. P., Garg, P., Mayawad, K., Paul, T., **Neog, A. B.**, Sarmah, B. J., Raidongia, K. & Gogoi, R. K. (2023). Light and solvent-driven actuator of clay and vanadium pentoxide nanosheets. *Materials Advances*, 4(16), 3619-3627.
Link: <https://pubs.rsc.org/en/content/articlelanding/2023/MA/D3MA00119A>
11. **Neog, A. B.**, Garg, P., Mayawad, K., Rajak, A. K., Deka, P., Gogoi, R. K., & Raidongia, K. (2023). Biomimetic remote handling and sensing devices of multiwalled carbon nanotubes and vanadium pentoxide. *Chemical Engineering Journal*, 480, 148181.
Link: <https://www.sciencedirect.com/science/article/pii/S1385894723069139>
12. **Neog, A. B.**, Rajak, A. K., Saikia, B., Nath, N., Das, T., Deka, P., Das, D., Gogoi, R. K., & Raidongia, K. (2025). Harnessing additional electricity from concentration gradient by employing electrodes with contrasting interfacial activity. *Chemical Engineering Journal*, 506, 160249.
Link: <https://www.sciencedirect.com/science/article/abs/pii/S138589472501054X>

Book Chapters

1. **Neog, A. B.**; Goswami, R.; Gogoi, M.; Borah, A.; Konch, T. J.; Sarkar, R.; Gogoi, R. Current Trends In Polymeric And Novel 2D Material Based Membrane Systems For Waste Water Treatment And Green Energy Harvesting. Purbayon Publication. **ISBN 978-93-90589-43-2**
Chapter Title: *Introduction to 2D Nano-Materials: An Overview*
2. **Neog, A. B.**; Garg, A.; Sarmah, B. K.; Talukdar, K.; Sharma, R.; Bora, B.; Dutta, T.; Deka, P. Modern Research Trends In Chemical Sciences And Technology. Purbayon Publication. **ISBN 978-93-90589-89-0**
Chapter Title: *A Review on Smart Materials: Current research and future outlook*