

Rohan Bahadur

DOB: 06th December 1992

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Broad Research Area: Materials Science & Engineering with over 10 years of experience, specializing in 2D and 0D materials for developing sustainable solutions towards energy, environmental, and biomedical applications.

Research Associate
School of Engineering
College of Engineering, Science and
Environment
University of Newcastle, Callaghan
NSW, Australia

PROFESSIONAL EXPERIENCES:

TIMELINE

RESPONSIBILITIES

- February 2023 - Present
- Research Associate at Global Innovative Center for Advanced Nanomaterials (GICAN), School of Engineering, **University of Newcastle**.
- Co-supervisor for 4 Ph.D. students (Vinay Naral, Harleen Kaur, Mukul M. Morey, Euiho Hwang), and involved in training and supervising many master's and bachelor's students.
 - Involved in teaching the Master's course for 'Materials Science and Engineering' for four semesters (MATS6001 Fundamentals of Materials Synthesis and Processing, MATS6002: Materials Characterisation Techniques, MATS6004: Multifunctional Advanced Nanomaterials, and MATS6005: Applications of Nanomaterials: Energy and Environmental)
 - Leading the energy storage research at the center which involves keeping updated with new techniques and training students in different aspects of batteries and supercapacitors.
 - Research on 2D heterostructures for Lithium-ion battery/Sodium-ion battery, Supercapacitors, CO₂ capture, and Electrocatalysis.
- November 2019 - March 2023
- Ph. D. candidate at GICAN, University of Newcastle working on nanoporous borocarbonitride nanomaterials for energy storage and carbon capture applications under the supervision of **Prof. Ajayan Vinu**.
- September 2016 - November 2019
- Junior Research Fellow in the Department of Biosciences and Bioengineering, IIT Bombay working on 0D and 2D materials for biomedical applications with **Prof. Rohit Srivastava**. Herein, worked on various projects:
- Cationic carbon dots for latent fingerprinting and bio-analyte sensing.
 - Using graphene and their analogues for localized photothermal therapy of cancer.
 - Synthesis of MXene nanostructures for cancer theranostics.
 - Using 2D/0D TMDs (MoS₂/WS₂) for NIR activated *in vitro* cancer therapy.

- Development of various assays for biosensing through optical/fluorescent/electrochemical techniques.
- February 2016 - Master's project at ICMCB, CNRS, University of Bordeaux, France on
May 2016 "Production of patchy particles as building blocks of limited valence" with Professor Etienne Duguet.
- High yield (>80 %) synthesis of silica tetrapods having 4 polystyrene pods.
 - Synthesis of patchy particles with regioselective functionalized surface.
- January 2015 - Worked with Professor Badal Kumar Mandal during M.Sc. at VIT
December 2015 University on synthesis of nanomaterials using green-chemistry approach
- Synthesis and characterisation of 'reduced graphene oxide' using plant extract.

ACADEMIC QUALIFICATION:

Name of Course	College/University/Board	Year	Grade
Ph.D. Materials Science and Engineering	University of Newcastle, Australia	2019 - 2023	NA
M. Sc. Chemistry	VIT University, Vellore	2014-16	8.15/10
B. Sc. Chemistry (major), Physics, Maths	Mumbai University	2011-14	4.35/7
(HSC) 12 th Board; Science	CBSE, Kendriya Vidyalaya IIT Powai	2011	73.4%
(SSC) 10 th Board	CBSE, Kendriya Vidyalaya IIT Powai	2009	80.8%
Diplome Nationale du Brevet	College Henri-Brisson, Bordeaux, France	2006-07	NA

PATENTS

1. Barkha Singh, **Rohan Bahadur**, Mayuri Gandhi, Rohit Srivastava. Green Synthesis of PEGylated-Tungsten Disulfide Quantum Dots, Patent granted: 432989, May 2023.
2. Barkha Singh, **Rohan Bahadur**, Mayuri Gandhi, Rohit Srivastava. "A nanocomposite of fluorescent gold nanocluster conjugated crumpled MXene nanosheets and applications thereof" Patent granted: 404681, January 2022.
3. Barkha Singh, **Rohan Bahadur**, Mayuri Gandhi, Rohit Srivastava. "Novel Synthesis of Titanium Carbide (Ti₃C₂-MXene) Nanobipyramids by Hydrothermal Method" Patent granted: 410620, November 2022.
4. **Rohan Bahadur**, Mukeshchand Thakur, Mukesh Kumar Kumawat, Rohit Srivastava. "Method for preparing carbon dots (CDs) and uses thereof" IPA no. 201721038918 granted: 477212, December 2023.
5. Barkha Singh, **Rohan Bahadur**, Mayuri Gandhi, Rohit Srivastava, MXene composite nanosheet and method of preparing the same, Patent Granted: 484042, December 2023
6. Barkha Singh, **Rohan Bahadur**, Janhavi Rajan Devrukhkar, Mayuri Gandhi, Rohit Srivastava. "Process for preparing fluorescent protein nanoparticles" IPA no. 202021026511 filed in July 2020.

PUBLICATIONS

List of first author publications:

1. **Rohan Bahadur**, Swapnil Deshpande, Barkha Singh, Nithya S. George, P.A. Aleena, Wei Li, Dong-Chen Qi, Rohit Srivastava, Sudip Chakraborty, Ajayan Vinu, Ordered Mesoporous Borocarbonitride-Reduced Graphene Oxide Heterostructure for Quasi Solid-State Supercapacitors and Sodium-Ion Batteries, *Nano Energy*, 2025, 146, 111495. (I.F.: 17.1)
2. **Rohan Bahadur**, Binodhya Wijerathne, Ajayan Vinu, Multiple Heteroatom Doped Nanoporous Biocarbon for Supercapacitor and Zinc-ion Capacitor, *ChemSusChem*, 2024, e202400999 (I.F: 7.5).
3. **Rohan Bahadur**, Ian Jason J, Yasuhiro Sakamoto, Shery Chang, Xiaojiang Yu, Mark BH Breese, Suresh K. Bhargava, Jang Mee Lee, Puspamitra Panigrahi, Ajayan Vinu, Nanohybrids of BCN-Fe_{1-x}S for Sodium and Lithium Hybrid Ion Capacitors, *Small*, 2024, 20, 2311945 (I.F: 13.0).
4. **Rohan Bahadur**, Gurwinder Singh, Zhixuan Li, Barkha Singh, Rohit Srivastava, Yasuhiro Sakamoto, Shery Chang, Ramaswamy Murugavel, Ajayan Vinu, Hybrid nanoarchitectonics of ordered mesoporous C₆₀-BCN with high surface area for supercapacitors and lithium-ion batteries, *Carbon*, 2024, 216, 118568 (I.F: 10.5)
5. **Rohan Bahadur**, Barkha Singh, Deepika Rai, and Rohit Srivastava, Influence of PEGylation on WS₂ Nanosheets and Its Application in Photothermal Therapy, *ACS Applied Biomaterials*, 2023, 6, 4740. (I.F: 4.7).
6. Jang Mee Lee¹, **Rohan Bahadur**¹, Showkat Hassan Mir, Ian Chirchir Bargoria, Vibin Perumalsamy, Ajanya Maria Ruban, Xiaojiang Yu, Mark BH Breese, Jiabao Yi, Sudip Chakraborty, Ajayan Vinu, Incorporation of Bimetallic Sulphide with Carbon Nitride for Advanced Na-ion Batteries, *Small*, 2023, 20, 2304587 (¹equal contribution) (I.F: 13.0).
7. **Rohan Bahadur**, Gurwinder Singh, Yoshio Bando, Ajayan Vinu, Advanced porous borocarbonitride nanoarchitectonics: Their structural designs and applications, *Carbon*, 2022, 190, 142 (I.F: 10.5).
8. **Rohan Bahadur**, Gurwinder Singh, Mengyao Li, Dewei Chu, Jiabao Yi, Ajay Karakoti, Ajayan Vinu, BCN nanostructures conjugated nanoporous carbon with oxygenated surface and high specific surface area for enhanced CO₂ capture and supercapacitance, *Chemical Engineering Journal*, 2023, 460, 141793 (I.F: 13.3).
9. **Rohan Bahadur**, Mukesh K. Kumawat, Mukeshchand Thakur, Rohit Srivastava, Multifluorescent Cationic Carbon Dots for Solid-State Fingerprinting, *Journal of Luminescence*, 2019, 208, 428 (I.F: 3.3).
10. Barkha Singh¹, **Rohan Bahadur**¹, Priyanka Maske, Dipty Singh, Ajayan Vinu, Rohit Srivastava, Nanotoxicological Evaluation of Surface Engineered WS₂ Quantum Dots in Male and Female Wistar Rats for Targeted Nucleus Imaging and Photothermal Therapy, *under review* (¹equal contribution).

Co-author publications:

11. Nithya S. George, **Rohan Bahadur***, Mohammed Fawaz, Sara Tahery, Paul Munroe, Arun Aravind, D. Sajan, Gurwinder Singh, Ajayan Vinu, Carbon Nitride Incorporated Nanoporous Carbon Nanoarchitectonics Derived from Victorian Brown Coal for Supercapacitor and Oxygen Reduction Reaction, *Carbon*, 2025, 120857, <https://doi.org/10.1016/j.carbon.2025.120857> (I.F.: 11.6).
12. Vishnumaya Narayanan, Gurwinder Singh, Ajanya M Ruban, Arun Baskar, **Rohan Bahadur**, Vibin Perumalsamy, Kavitha Ramadass, Jae-Hun Yang, Sanje Mahasivam, Vipul Bansal, Ajayan Vinu, Hierarchically Architected Nanoporous Biocarbons Prepared via

- Dual Chemical Activation for Applicability in CO₂ Capture and Supercapacitors, ACS Applied Materials & Interfaces, 2025, <https://doi.org/10.1021/acsami.5c09564>. (I.F.: 8.2)
13. Ajanya Maria Ruban, Gurwinder Singh, **Rohan Bahadur**, Hoonkyung Lee, Ian Jason, Puspamitra Panigrahi, John Kennedy, Ajayan Vinu, Nanoporous biocarbon functionalised with crystalline FeS nanostructures as a High-Performance Anode for Lithium-Ion Batteries and insights into its Li storage mechanism, *Journal of Materials Chemistry A*, 2025, <https://doi.org/10.1039/D5TA01708D> (I.F.: 10.7).
 14. P.A. Aleena, Gurwinder Singh, Devthade Vidyasagar, Prashant Kumar, Muhammad Ibrar Ahmed, **Rohan Bahadur**, CI Sathish, Davidson Sajan, Ajayan Vinu, Recent advancements in metal-free nitrides based single-atom catalysts: Nanoarchitectonics and applications, *Progress in Materials Science*, 2025, 101490 (I.F.: 33.6).
 15. Vibin Perumalsamy, **Rohan Bahadur**, Arun Vijay Baskar, CI Sathish, Ajanya Maria Ruban, Zhenxiang Cheng, Xiaoning Li, Gurwinder Singh, Jiabao Yi, Ajayan Vinu, Nanoarchitectonics of N- and S-Doped Nanoporous Biocarbons with High Specific Surface Area from Casein and Dithiooxamide for Supercapacitor Applications, *Advanced Energy and Sustainability Research*, 2025, 2500037 (I.F.: 6.2).
 16. Jolitta Sheri John Britto, Sharon L Wong, Vaishwik Patel, Thi Kim Anh Tran, Vibin Perumalsamy, Mukul Morey, Xuan Minh Chau Ta, Antonio Tricoli, **Rohan Bahadur**, Gurwinder Singh, Prashant Kumar, Ajayan Vinu, Copper-loaded Nitrogen-rich Mesoporous C₃N₆ based Nanozymes for Calorimetric Detection of Glutathione and Glucose, *Advanced Sensor Research*, 2025, 2400149.
 17. Mukul M. Morey, **Rohan Bahadur**, Zhixuan Li, Nithinraj P. Dharmarajan, Mohammed Fawaz, Arkamita Bandyopadhyay, Sumit Chahal, Solomon Ansah, R. K. Singh Raman, Mauricio Terrones, Prashant Kumar, Ajayan Vinu, Experimental realization of fluoroborophene, *Small*, 2025, 2407763 (I.F.: 13.0).
 18. Gurwinder Singh, Ajanya Maria Ruban, Harleen Kaur, Vaishwik Patel, Arsh A. Ismaili, **Rohan Bahadur**, Ajayan Vinu, Nanoporous Carbon/Nanoceria Nanocomposites with High Specific Surface Area for CO₂ Capture and Enzyme-Like Activity, *Chemistry An Asian Journal*, 2024, e202400994 (I.F.: 3.5).
 19. Nithya S. George, Gurwinder Singh, **Rohan Bahadur**, Prashant Kumar, Kavitha Ramadass, CI Sathish, Mercy Benzigar, Davidson Sajan, Arun Aravind, Ajayan Vinu, Recent Advances in Functionalized Biomass-Derived Porous Carbons and their Composites for Hybrid Ion Capacitors, *Advanced Science*, 2024, 11, 2406235 (I.F.: 14.3).
 20. Bhavya Mod, Arun V. Baskar, **Rohan Bahadur**, Ehsan Tavakkoli, Lukas Van Zwieteren, Gurwinder Singh, Ajayan Vinu, From cane to nano: advanced nanomaterials derived from sugarcane products with insights into their synthesis and applications, *Science and Technology of Advanced Materials*, 2024, 25, 2393568 (I.F.: 7.4).
 21. Prashant Kumar, Gurwinder Singh, **Rohan Bahadur**, Zhixuan Li, Xiangwei Zhang, C.I. Sathish, Mercy R. Benzigar, Thi Kim Anh Tran, Nisha T. Padmanabhan, Sithara Radhakrishnan, Jith C Janardhanan, Christy Ann Biji, Ann Jini Mathews, Honey John, Ehsan Tavakkoli, Ramaswamy Murugavel, Soumyabrata Roy, Pulickel M. Ajayan, Ajayan Vinu, The rise of borophene, *Progress in Materials Science*, 2024, 146, 101331 (I.F.: 39.5).
 22. Ajanya Maria Ruban, Gurwinder Singh, **Rohan Bahadur**, C.I. Sathish, Ajayan Vinu, Almond skin derived porous biocarbon nanoarchitectonics with tunable micro and mesoporosity for CO₂ adsorption and supercapacitors, *Carbon*, 2024, 228, 119372 (I.F.: 10.5).
 23. Jefrin M Davidraj, Clastinrusselraj Indirathankam Sathish, Mercy Rose Benzigar, Zhixuan Li, Xiangwei Zhang, **Rohan Bahadur**, Kavitha Ramadass, Gurwinder Singh, Jiabao Yi,

- Prashant Kumar, Ajayan Vinu, Recent advances in food waste-derived nanoporous carbon for energy storage, *Science and Technology of Advanced Materials*, 2024, 25, 2357062 (I.F.: 7.4).
24. Prashant Kumar, Gurwinder Singh, Xinwei Guan, Soumyabrata Roy, Jangmee Lee, In Young Kim, Xiaomin Li, Fanxing Bu, **Rohan Bahadur**, Sathvik Ajay Iyengar, Jiabao Yi, Dongyuan Zhao, Pulickel M. Ajayan, Ajayan Vinu, The Rise of Xene Hybrids, *Advanced Materials*, 2024, 36, 2403381 (I.F.: 27.4).
 25. Barkha Singh, **Rohan Bahadur**, Deepika Rai, Rohit Srivastava, Preclinical Toxicity Assessment of Ti-Based MXene Nanomaterials for Advanced Theranostic Applications, *Advanced Therapeutics*, 2024, 7, 2300268 (I.F.: 3.7).
 26. Jolitta S. J. Britto, Xinwei Guan, Thi Kim Anh Tran, Zhihao Lei, **Rohan Bahadur**, Vaishwik Patel, Xiangwei Zhang, Sharon L. Wong, Ajayan Vinu, Emerging Multifunctional Carbon Nanomaterials Based Biosensors for Cancer Diagnosis, *Small Science*, 2023, 4, 2300221 (I.F.: 11.1).
 27. Mohammed Fawaz, **Rohan Bahadur**, Nithinraj Panangattu Dharmarajan, Jae-Hun Yang, C.I. Sathish, Aathira M. Sadanandan, Vibin Perumalsamy, Gurwinder Singh, Xinwei Guan, Prashant Kumar, Ajayan Vinu, Emerging trends of carbon nitrides and their hybrids for photo-/electro-chemical energy applications, *Carbon*, 2023, 214, 118345 (I.F.: 10.5).
 28. Xun Geng, Gurwinder Singh, C.I. Sathish, Zhixuan Li, **Rohan Bahadur**, Yang Liu, Sean Li, Xiaojiang Yu, Mark Breese, Jiabao Yi, Ajayan Vinu, Biomass derived nanoarchitectonics of porous carbon with tunable oxygen functionalities and hierarchical structures and their superior performance in CO₂ adsorption and energy storage, *Carbon*, 2023, 214, 118347 (I.F.: 10.5).
 29. Barkha Singh, **Rohan Bahadur**, Mayuri Gandhi, Rohit Srivastava, Fabrication and cytotoxicity evaluation of polyethyleneimine conjugated fluorescent MXene nanosheets as cancer theranostics agent, *Polymer Bulletin*, 2023, 80, 11329 (I.F.: 3.1).
 30. Prashant Kumar, Gurwinder Singh, Xinwei Guan, Jangmee Lee, **Rohan Bahadur**, Kavitha Ramadass, Pawan Kumar, Md. Golam Kibria, Devthade Vidyasagar, Jiabao Yi, Ajayan Vinu, Multifunctional carbon nitride nanoarchitectures for catalysis, *Chemical Society Reviews*, 2023, 52, 7602 (I.F.: 40.4). (**Highly Cited Paper**)
 31. Barkha Singh, **Rohan Bahadur**, Priyanka Maske, Mayuri Gandhi, Dipty Singh, Rohit Srivastava, Preclinical safety assessment of red emissive gold nanocluster conjugated crumpled MXene nanosheets: a dynamic duo for image-guided photothermal therapy, *Nanoscale*, 2023, 15, 2932 (I.F.: 5.8).
 32. Barkha Singh, Chetna Patnaik, **Rohan Bahadur**, Mayuri Gandhi, Abhijit De, and Rohit Srivastava, Synthesis and degradation mechanism of renally excretable gold core-shell nanoparticles for combined photothermal and photodynamic therapy, *Nanoscale*, 2023, 15, 1273 (I.F.: 5.8).
 33. Arun V. Baskar, Gurwinder Singh, Ajanya M. Ruban, Jefrin M. Davidraj, **Rohan Bahadur**, Prasanthi Sooriyakumar, Prashant Kumar, Ajay Karakoti, Jiabao Yi and Ajayan Vinu, Recent Progress in Synthesis and Application of Biomass-Based Hybrid electrodes for Rechargeable Battery, *Advanced Functional Materials*, 2022, 33, 2208349 (I.F.: 18.5).
 34. Rou Wang, Salman Khoshk Rish, Jang-Mee Lee, **Rohan Bahadur**, Ajayan Vinu, Arash Tahmasebi, Jianglong Yu, N-doped porous carbon from direct KOH activation of Victorian brown coal for high-rate energy storage performance, *Journal of Analytical and Applied Pyrolysis*, 2022, 168, 105785 (I.F.: 5.8).
 35. Rou Wang, Jang-Mee Lee, Salman Khoshk Rish, **Rohan Bahadur**, Ajayan Vinu, Arash Tahmasebi, Jianglong Yu, One-pot synthesis of N-doped carbon nanosheets from Victorian

- brown coal with enhanced lithium storage, *Fuel Processing Technology*, 2022, 238, 107498 (I.F.: 7.2).
36. Kavitha Ramadass, CI Sathish, Gurwinder Singh, Sujanya M. Ruban, Ajanya M. Ruban, **Rohan Bahadur**, Gopalakrishnan Kothandam, Tony Belperio, James Marsh, Ajay Karakoti, Jiabao Yi, Ajayan Vinu, Morphologically tunable nanoarchitectonics of mixed kaolin-halloysite derived nitrogen-doped activated nanoporous carbons for supercapacitor and CO₂ capture applications, *Carbon*, 2022, 192, 133 (I.F.: 10.5).
 37. Gurwinder Singh, Jangmee Lee, **Rohan Bahadur**, Ajay Karakoti, Jiabao Yi, Ajayan Vinu, Highly graphitized porous biocarbon nanosheets with tunable Micro-Meso interfaces and enhanced layer spacing for CO₂ capture and LIBs, *Chemical Engineering Journal*, 2022, 433, 134464 (I.F.: 13.3).
 38. Jang Mee Lee, Stalin Joseph, Ian Chirchir Bargoria, Sungho Kim, Gurwinder Singh, Jae-Hun Yang, Kavitha Ramadass, **Rohan Bahadur**, Xiaojiang Yu, Mark BH Breese, Jiabao Yi, Ajayan Vinu, Synthesis of Nitrogen-Rich Carbon Nitride-Based Hybrids and a New Insight of Their Battery Behaviors, *Batteries & Supercaps*, 2022, 5, e202100369 (I.F.: 5.1).
 39. Kavitha Ramadass, Kripal S. Lakhi, C I Sathish, Ajanya M. Ruban, **Rohan Bahadur**, Gurwinder Singh, Harpreet S. Gujral, Mohammed Al-Abri, Ala'a H. Al-Muhtaseb, Ehsan Tavakkoli, Jiabao Yi, Ajay Karakoti, Ajayan Vinu, Copper nanoparticles decorated N-doped mesoporous carbon with bimodal pores for selective gas separation and energy storage applications, *Chemical Engineering Journal*, 2022, 431, 134056 (I.F.: 13.3).
 40. S Supriya, Gurwinder Singh, **Rohan Bahadur**, Ajayan Vinu, Gurumurthy Hegde, Porous carbons derived from Arecanut seeds by direct pyrolysis for efficient CO₂ capture, *Emergent Materials*, 2021, 5, 1757 (I.F.: 4.8).
 41. Barkha Singh, **Rohan Bahadur**, Misah Rangara, Mayuri N Gandhi, Rohit Srivastava, Influence of Surface States on the Optical and Cellular Property of Thermally Stable Red Emissive Graphitic Carbon Dots, *ACS Applied Bio Materials*, 2021, 4, 4641 (I.F.: 4.6).
 42. Barkha Singh, **Rohan Bahadur**, Suditi Neekhara, Mayuri Gandhi, and Rohit Srivastava, Hydrothermal-Assisted Synthesis and Stability of Multifunctional MXene Nanobipyramids: Structural, Chemical, and Optical Evolution, *ACS Applied Materials & Interfaces*, 2021, 13, 3011 (I.F.: 8.3).
 43. Gurwinder Singh, **Rohan Bahadur**, Jang Mee Lee, In Young Kim, Ajanya M Ruban, Jefrin M Davidraj, Dean Semit, Ajay Karakoti, H Ala'a, Ajayan Vinu, Nanoporous activated biocarbons with high surface areas from alligator weed and their excellent performance for CO₂ capture at both low and high pressures, *Chemical Engineering Journal*, 2021, 406, 126787 (I.F.: 13.3).
 44. Gurwinder Singh, **Rohan Bahadur**, Ajanya M. Ruban, Jefrin M. Davidraj, Dawei Su and Ajayan Vinu, Synthesis of functionalized nanoporous biocarbons with high surface area for CO₂ capture and supercapacitor applications, *Green Chemistry*, 2021, 23, 5571 (I.F.: 9.3).
 45. Gurwinder Singh, Jangmee Lee, Ajay Karakoti, **Rohan Bahadur**, Jiabao Yi, Dongyuan Zhao, Khalid Al-Bahily, Ajayan Vinu, Emerging trends in porous materials for CO₂ capture and conversion, *Chemical Society Reviews*, 2020, 49, 4360 (I.F.: 40.4). **(Highly Cited Paper)**
 46. Mukesh K. Kumawat, Mukeshchand Thakur, **Rohan Bahadur**, Tanvi Kaku, Prabhuraj RS, Rajdip Bandhopadhyay, Rohit Srivastava, Preparation of Graphene oxide - graphene quantum dot conjugate system and their cancer theranostic application, *Materials Science and Engineering: C* 2019, 103, 109774 (I.F.: 7.9).
 47. Deepak S. Chauhan, Mukesh K. Kumawat, Rajendra Prasad, Pradeep K. Reddy, Mukesh Dhanka, Sumit K. Mishra, **Rohan Bahadur**, Suditi Neekhara, Abhijit De, Rohit Srivastava, Plasmonic carbon nanohybrids for repetitive and highly localized photothermal cancer

therapy, *Colloids and Surfaces B: Biointerfaces*, 2018, 172, 430. (Work highlighted as the **journal cover** for the December 2018 issue) (I.F.: 5.4).

BOOK/BOOK CHAPTERS

Rohit Srivastava, Mukeshchand Thakur, Mukesh Kumar Kumawat, **Rohan Bahadur**, Next Generation Graphene Nanomaterials for Cancer Theranostic Applications, Springer Publishers, 2021, <https://doi.org/10.1007/978-981-33-6303-8> (**Complete book**)

Gurwinder Singh, **Rohan Bahadur**, Jae-Hun Yang, Kavitha Ramadass, Ajay Karakoti, Ajayan Vinu, Nanostructured Materials for Hydrogen Storage and Generation and Oxygen Reduction Reaction, *Energy Transition: Climate Action and Circularity* (2022), ACS Publishers, 1412. (Book chapter)

AWARDS/MISCELLANEOUS ACTIVITIES

- **Grant of 1.5 million INR** awarded for Rapid detection of Bilirubin using cationic multifluorescent Carbon Quantum Dots as a fluorometric probe to Barkha Singh, **Rohan Bahadur**, Rohit Srivastava, BIRAC SRISTI GYTI 2021 (PMU - 2021/06)
- **Editorial board member** for Springer Nature "Scientific Reports".
- Awarded the **early career researcher award (2024)** Global Innovative Center for Advanced Nanomaterials (GICAN), University of Newcastle, Australia.
- Awarded Member of Royal Society of Chemistry (**MRSC**) in 2023.
- Invited as an exchange student by the Yokohama national university (YNU), Japan as part of the "YOKOHAMA International Education Program for Leading Sustainability Transformation towards a Resilient Society with Industry-Government-Academia Network" (2022).
- Awarded the **best Ph.D. student award (2020)** and health safety and environment award (2022) at Global Innovative Center for Advanced Nanomaterials (GICAN).
- Student representative for the Health and Safety committee of 'Faculty of Engineering and Built Environment', University of Newcastle.
- Organising committee member for International Conference on Emerging Advanced Nanomaterials (ICEAN - 2022) and ICEAN - 2024 at Newcastle, Australia.
- Organising committee member for IITB India - NTU Singapore Joint Symposium on Healthcare Technologies at Indian Institute of Technology - Bombay, Powai, India (September 2016).
- Member of the Royal Australian Chemical Institute (RACI) and Australian Battery Society.
- Reviewer for *Advanced Functional Materials*, *Advanced Science*, *Chemical Engineering Journal*, *Biosensors and Bioelectronics*, *Carbon*, *Advanced Engineering Materials*, *Scientific Reports*, *Process Safety and Environmental Protection*, *New Journal of Chemistry*, *Journal of Nanoparticle Research*, *Diamond and Related Materials*, *Heliyon*, *Microchimica Acta*, *ChemistrySelect*.

CONFERENCES:

November 2024 Invited speaker at the 'International Conference on Emerging Advanced Nanomaterials' -2024 (ICEAN-2024), Newcastle, Australia.

October 2022 Best poster award by "Wiley - Small" on 'Mesoporous graphene-borocarbonitride hybrids for Na-ion batteries' at the 'International Conference on Emerging Advanced Nanomaterials -2022', Newcastle, Australia.

- July 2022 Oral presentation on 'Ordered Mesoporous Borocarbonitride-C₆₀ nanohybrids for energy storage application' at the 'Royal Australian Chemical Institute National Congress', Brisbane, Australia.
- March 2019 Poster presentation on "One-pot synthesis of N-doped carbon dots for Bilirubin detection" at International Conference on Nano-materials for Environmental Applications (NEA 2019) Miramar, Goa, India.
- May 2016 Presented a paper titled "Biofabrication of reduced graphene oxide using Terminalia Arjuna plant extract" at the 10th International Conference on "Science Engineering and Technology (SET)" at VIT University, Vellore, India.
- Nov 2015 Presented a paper titled "Formulation of hydrochlorothiazide using chitosan nanoparticles" at 9th International Conference on "Science Engineering and Technology (SET)" at VIT University, Vellore, India.

ENGLISH LANGUAGE PROFICIENCY TESTS

International English Language Testing System (IELTS): Overall Band Score 8

Listening: 8.5, Reading: 8.0, Writing: 7.0, Speaking: 7.5

LANGUAGES AND INFORMATION TECH

Languages: Hindi; English; French

Technology trends: Proficient with latest tech developments - various OS platforms, Web and contemporary applications, basic understanding of common hardware and allied drivers

SUMMARY OF TECHNICAL SKILLS

Material characterisation: Nanomaterials synthesis, Nanofabrication, UV/Vis/NIR/Fluorescence Spectrophotometry, Raman spectroscopy, Fluorescence microscopy, FTIR, X-Ray Diffraction, DLS-Zeta, X-ray Photoelectron Spectroscopy, Scanning electron microscopy, BET N₂ adsorption-desorption, Inductively Coupled Plasma-Atomic Emission Spectrometer, NEXAFS, XANES, EXAFS, Thermogravimetric analysis.

Electrochemical techniques: Li-ion and Na-ion battery fabrication with both half-cell and full-cell configurations, supercapacitors using three-electrode and two-electrode setups, kinetic studies, impedance spectroscopy, GITT measurements, Zn-ion capacitors, Symmetric carbon batteries.

Cell culture techniques: Handling of normal cell lines (L929 mouse fibroblast) and breast cancer cell-lines (MDAMB-231, MCF-7, 4T1), Biocompatibility evaluation, *in-vitro* Photothermal therapy, Magnetic Hyperthermia, Confocal Microscopy, Cellular uptake and ROS using FACS, Cellular uptake using ICP-AES.

Scientific Packages: EndNote, Mendeley, GraphPad Prism, Inkscape, Image J (NIH), OriginLab 8.0 and higher, SigmaPlot 14.0.

References

Prof. Ajayan Vinu, FRSC, FRACI, FFMAS, FWAC, FWAAS, FICS, FAPAM
 Laureate Professor and Director
 Clarivate "Highly Cited Researcher 2024"
 Global Innovative Center for Advanced Nanomaterials (GICAN)
 Newcastle Institute for Energy and Resources
 College of Engineering, Science and Environment
 E-mail: ajayan.vinu@newcastle.edu.au

Prof. Rohit Srivastava, FNASc, FRSC, FRSB, FNAE, FAMS
 Vigyan Shri
 Himanshu Patel Chair Professor
 Dr Abdul Kalam National Fellow, Dr. Shanti Swarup Bhatnagar Prize 2021 in Medical Sciences
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