7/9/2022

S K Nataraj, FRSC

Professor

Centre for nano and material sciences, jain university

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* ORCID ID: [0000-0002-1489-8312](https://www.scopus.com/redirect.uri?url=https://orcid.org/0000-0002-1489-8312&authorId=12790439100&origin=AuthorProfile&orcId=0000-0002-1489-8312&category=orcidLink%22)
* Researcher ID: [B-2455-2019](https://publons.com/researcher/B-2455-2019/)

Webpage: <https://cnms.jainuniversity.ac.in/faculty-nataraj-sk.htm>

Google scholar:[**http://scholar.google.co.in/citations?user=DFugHtIAAAAJ&hl=en**](http://scholar.google.co.in/citations?user=DFugHtIAAAAJ&hl=en)

**Date of Birth: 4th February 1981**

**DR.S.K. N A T A R A J, FRSC**

**Dr.S.K. N A T A R A J, FRSC**

## Professor and Group Leader

## Sustainable Materials and Processes Lab

## **Centre for Nano and Material Sciences**

## Jain University Global Campus

## Bangalore-562 112, India

**Tel** (mobile):+918469579774; E-mail: [sk.nataraj@jainuniversity.ac.in](mailto:sk.nataraj@jainuniversity.ac.in) ; [sknata@gmail.com](mailto:sknata@gmail.com)

## **PRESENT POSITION**

## **Professor, Centre for Nano and Material Sciences (CNMS)**

**Work Experience:**

|  |  |  |
| --- | --- | --- |
| Professor | 1 Spt’18 to Present | CNMS, JU, India |
| Associate Professor | Dec’15 to 31 Aug’18 | CNMS, JU, Bangalore, India |
| DST-INSPIRE Faculty Fellow | July’13 to Nov’15 | CSIR-CSMCRI, Bhavnagar |
| University of Cambridge | May’10 to July’13 | Cavendish Laboratory, UK |
| Academia Sinica | June’09 to April’10 | IAMS and CCMS, Taiwan |
| Chonnam National University | May’07 to April’09 | AMERI, South Korea |

# **Education**

Ph.D Thesis Title: “*Membrane based separation processes for industrial effluent treatment*” Supervisors: *Prof. K.M. Hosamani and Prof.T.M. Aminabhavi*, Ph.D. USA

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| --- | --- | --- | --- | --- |
| **Course** | **Centre/College** | **University** | **Duration** | **Awarded** |
| Ph. D. | Centre of Excellence in Polymer Science | Karnatak University, India. | 28-02-05 to 28-02-07 | 21st Jan’08 |
| M.Sc. | Centre of Excellence in Polymer Science | Karnatak University, India | **April’02 to June’04** | 19th Jan‘05 |
| B.Sc. | **P.C. Jabin Science College** | **Karnatak University, India** | **June’99 to May’02** | 10th Dec’02 |

## **GRANTS AND PROJECTS**

|  |  |  |  |
| --- | --- | --- | --- |
| Project Details | | Agency | Role |
| 1. Talent Attraction Program –Community of Madrid, Kingdom of Spain, Institute IMDEA-Water (€298,000) Duration 4 Years (2018-2022), Functional membranes for water treatment applications. Euros 299,000.00   2017-T1/AMB5610 | | Community of Madrid, Spain | Principal Investigator |
| 1. DST-Nanomission Project:   Ordered Nanoporous Membranes and Functional Nanomaterials for Water Treatment Applications. Duration 3 Years (2019-2021) Fund Rs.160 Lakhs  SR/NM/NT-1073/2016 | | DST Nanomission, Govt. of India | Principal Investigator |
| 1. DST-inspire FACULTY FELLOW AWARD   Novel Nanostructured Electrode for Fuel Cell and Battery Fuel Cell applications (Fund Rs.35.00 LAKH) | | DST  Govt. of India | Principal Investigator |
| 1. Biomass Derived Heteroatom Doped Graphene and Hard Carbon Composites for Energy Storage Application   Funding: 77.00 Lakhs | | DST Govt of India | Principal Investigator |
| 1. Separation of Biobutanol via Scalable Approach of Pervaporation: To be a “Viable Biofuel for Future   (Fund Rs.35.00 LAKH) CRG/2018/003474 | | SERB, Govt of India | Co-PI |
| *Co-authroed/Co-pi projects*   1. EPSRC-UK Follow-on-Fund, (£120,000.00), University of cambridge, UK   A high performance supercapacitor using novel patented electrode technology.   1. Qatar Foundation (qnrf)–Work Site- University of Cambridge, UK   Composite Reverse Osmosis Membranes from Block Copolymers | | | |
| 👍Supervising: 10-Ph. D, (Ongoing), 2-Mater Projects, 3-Undergraduate Projects | | | |
| Broader Research Interests and experience in: Membranes - Separation and Purification Technology, Sustainable and Green Energy Materials for Forward Osmosis, Fuel Cells - Membrane-Electrode-Assemblies [MEAs], Thin Supercapacitor | | | |
| leadership  (Design, Construction and Training) | * Developing block copolymer thin-film membranes, establishing lab scale preparation and testing facilities at Cavendish Lab, University of Cambridge (2011-13). * Construction of Membrane Based-Gas Separation Unit at Cavendish Lab, University of Cambridge (May’2010-Nov’2010). * Starting Proton-Exchange Membrane for Fuel Cell research activities (2009-10). * Electrospinning Facility, National Taiwan University (2009-10). * Establishing Membrane testing facilities in Karnatak University (2005-07). | | |
| SKILLs | **Membranes: Preparation/Development, Testing Including;** Performance Evaluation, Fouling Studies, Characterization using  Scanning Electron Microscope (SEM)  Transmission Electron Microscope (TEM)  Atomic Force Microscope (AFM)  ATR-Fourier Transform Infra-Red Spectroscope (FTIR)  UV-Visible Spectroscope, Zeta Potential, Porosity Meter, OSMO Inspector, GPC, HPLC, Contact Angle, Testing Cell and Unit Design | | |
| COLLABORATIONS | Prof. K-H. Chen, Academia Sinica, Taipei, Taiwan.  Prof. C-H. Wang, NTUST, Taipei, Taiwan.  Prof. K.S. Yang, Chonnam National University, South Korea.  Dr. Kamalesh Prasad, CSIR-CSMCRI, Bhavnagar.  Dr. Ramavatar Meena, CAIR-CSMCRI, Bhavnagar. | | |

**INTERNATIONAL CONFERENCE TECHNICAL SESSION CHAIR**

**CONVENER**

**International Conference on Green Methods for Separation, Purification and Nanomaterials Synthesis -2018 (GMSP&NS-2018) organized by Centre for Nano and Material Sciences, Jain University on 24th & 25th April 2018 at JGI Global Campus, Bengaluru.**

**Delegates from 5 Different Countries and 14 Different states within INDIA.**

**Organizing Committee**

* Advisory Committee: International Conference on “Advanced Materials Science and Applications (ICAMSA-2020)” Organized by MS Ramaiah Institute of Science and Technology, Bangalore 3rd & 4th September 2020.
* Technical Committee Member: 2nd National Seminar on Frontiers in Materials and Chemical Sciences (NSFMC 2020) 31st August to 4th September 2020.
* Technical Committee Member: International Conference on Innovations in Material Science (AIMS-2020) organized by BMS Institute of Technology and Management on 6th August 2020.
* Advisory Committee: 2nd International Conference on Advanced Materials & Technology (ICMAT-20) on 17th January 2020. 17th January 2020,

CONFERENCE SESSION CHAIR:

* Chaired Session on “Ultrafast Excited State Dynamics of Twisted Aromatics” at 2nd National Seminar on Frontiers in Materials and Chemical Sciences (NSFMC 2020) 31st August to 4th September 2020.
* Chair and Panel Member for session “Water Pollution: Monitoring & Remediation” at International Conference on Innovations in Material Science (AIMS-2020) organized by BMS Institute of Technology and Management on 6th August 2020.
* Chaired the Session on “Smart Materials and Water Treatment” at Second International Conference on Advanced Materials & Technology (ICMAT-20) on 17th January 2020. 17th January 2020,
* International Conference on Green Methods for Separation, Purification and Nanomaterials Synthesis -2018 (GMSP&NS-2018) organized by Centre for Nano and Material Sciences, Jain University on 24th & 25th April 2018
* International Conference on Advanced Materials and Technology, ICMAT-16 held at Mysuru on 26th to 28th May 2016.

**INVITED TALKS**

1. Delivered Invited Talk on **“**Exploring Bio-Based Materials for Energy and Environmental Applications” at National Webinar organized by Department of Physics, Davangere University, Davangere, 30th June 2021.
2. Delivered Invited Talk on “**“**Sustainable Materials and Processes for Future” at National Webinar organized by Department of Chemistry, Gokhale Centenary College, Ankola, Uttara Kannada, 18th June 2021.
3. Delivered Invited Talk on “**“**Advances in Sustainable Materials and Processes” at National Webinar organized by P. C. Jabin Science College, Hubballi, 10th June 2021.
4. Delivered Invited Talk on “**“**Functional Nanomaterials-based Membranes and  
   Filtration kits for effective treatment of Water” at Global Academy of Technology Bengaluru, 12th November 2020.
5. Delivered Invited Talk on “Strategic Multifunctional Materialsfor Water and Energy Applications” at Dr. B.R. Ambedkar National Institute of Technology, Jalandhar, 18th September 2020.
6. Delivered Invited Talk on “Chemistry in the Service of Society at Raja Lakhamangouda Science Institute, Belagavi on 25th June 2020.
7. Delivered Invited talk on Intellectual Property Rights and Advances in Functional Nanomaterials for Water Treatment Applications” at One Day State Level Seminar on Intellectual Property Rights (IPR), BVV Sangha’s Basaveshwar Science College, Bagalkot on 24th February 2020.
8. Delivered Invited Talk on “Strategic Advancement in Multifunctional Materials” at BMS Institute of Technology and Management, Bangalore on 11th February 2020.
9. Delivered Invited Talk on “Smart and Functional Nanomaterials for Water Treatment and Energy Applications” at Second International Conference on Advanced Materials & Technology (ICMAT-20) on 17th January 2020.
10. Delivered Invited Talk on “Designing Sustainable Functional Nanomaterials for Water Treatment and Energy Applications at MS Ramaiah Institute of Science and Technology, Bangalore on 14th January 2020.
11. Delivered Invited Talk on “Waste to Wealth: Future Materials for Clean Water and Green Energy” at JSS University of Science and Technology, Bannimantap, Mysuru, Karnataka 570015 on 24th July 2019.
12. Invited Talk on "Sustainable Materials and Processes for Safe Water, Clean Environment and Green Energy" at Quality Improvement Programme in Chemistry held at Christ University, Bangalore on 21st May 2019.
13. Invited Talk on “Interdependence of Science and Technology in Present Scenario” on 2nd March 2018 at Tontadarya College of Engineering, Gadag, India.
14. Invited Talk on “Forward Osmosis: An Emerging Separation and Purification Process. On 18th January 2018 at Department of Chemistry and Physics, Ramaiah Institute of Technology, Bangalore-54, is organizing a Faculty Development Programme (FDP) on “Recent Advances in Material Science and Application (RAMSA-2018).
15. Invited Talk on “Green Materials for Clean Water and Energy” on 2nd August 2017 at Department of Physics, Ramaiah Institute of Technology, Bangalore-54, is organizing a Faculty Development Programme (FDP) on “Recent Trends in Photonic Techniques” during 31st July – 5th August 2017.
16. Invited Talk on “Sustainable Materials for Clean Water and Green Energy Applications” at *International Conference on Green Chemistry & Nanotechnology-Opportunities and Challenges* (GCNOC-2017) held at St. Aloysius College, Mangalore 27-28th February, 2017.
17. Invited Talk on Forward Osmosis: A Membrane Based Energy Efficient Process for Waste Treatment, Biomacro-molecules enrichment and value addition at *International Conference on Advanced Materials and Technology 2016*, **ICMAT-16** held at Mysuru on 26th May 2016 to 28th May 2016.
18. Delivered Invited Talk on “Sustainable Materials and Processes” at P. C. Jabin Science College, Hubballi on 8th March 32016.
19. Delivered Invited Talk on “Advanced and Sustainable Materials for Clean Water and Green Energy Applications” at Shri Siddeshwar Government College and PG Study Center, Nargund-582207 on 9th March 2016.
20. Young Researchers Conclave, Indian Institute of Technology Gandhinagar on December 27–28, 2013.
21. Recent Developments in Membrane Science and Technology: Focus on Forward Osmosis on 25th June-2014 RASPCENT-2014: Rajkot, Gujarat, INDIA.
22. Recent Advances in Separation and Purification Science and Technology on 19th August 2014, Forbes Academy, Gokak Falls, Karnataka, INDIA.
23. P.C. Jabin Science College, Karnatak University (2nd Aug’ 2011, Hubli, India)

## **Research Supervision/Guidance: Research Scholars**

## Ph.D

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Name of the Student | Course | Joining/Duration | Role | |
| 1 | Ashesh Mahto | Ph.D | August 2014-2019 | Guide | |
|  | Title: Designing of Materials Targeting Separation and Energy Storage Applications | | | | |
| 2 | A.Kanakraj | Ph.D | June 2016-2020 | Guide | |
|  | Title: Eco-friendly Synthesis of Functional Materials for Energy and Environmental Applicaions | | | | |
| 3 | M.R. Nidhi | Ph.D | August 2017-2021 | Guide | |
|  | Title:Synthetic and Biomaterial Interfaces for Membrane Separation Applications | | | | |
| 4 | Mahaveer Halakarni | Ph.D | 2018 | Guide | |
|  | Title: Designing High Performance Compatible Membranes and Draw Solutions for Forward Osmosis Process of Industrial Importance | | | | |
| 5 | Manohara H. M. | Ph.D | August 2017-2021 | Co-Guide | |
|  | Title: Design and Synthesis of Functional Materials for Universal Water Purification with Simultaneous Value Addition | | | | |
| 6 | Radha N. | Ph.D | August 2017-2021 | Co-Guide | |
|  | Title: Functional Nanomaterials and Nanocomposites for Electrochemical Energy Storage | | | | |
| 7 | Supratim Chakraborty | Ph.D | 2018 | Co-Guide | |
|  | Title: Design & synthesis of functionalized biopolymers and their application in catalysis | | | | |
| 8 | Sachin M. Shet | Ph.D | August 2018 | Co-Guide | |
|  | Title: Designing and Development of Strategies for Protein Packaging with Enhanced Stability for Improved Biocatalysis | | | | |
| 9 | Anshu Kumar | AcSIR 800 Project | January 2015 | Project Guide | |
|  | Title: Collecting Water Sample From Different Part Of Rajasthan And Gujarat for Analysis and Removal of Fluoride, Chromium and Color | | | | |
| 10 | Anita Samage | Ph.D | June 2019 | | Guide |
|  | Title: Compatible Biomass Derived Nanocomposite Electrods for Energy Application | | | | |
| 11 | Smitha Kamath | Ph.D | June 2019 | Guide | |
|  | Title: Bio-based Functional Nanomaterials for Water Treatment Applications | | | | |
| 12 | Ashok Maraddi | Ph.D | June 2019 | Guide | |
|  | Title: Biopolymer Derived Functionalized Polyelectrolyte Complexes for Water Treatment | | | | |
| 13 | Santosh K.N. | Ph.D | June 2019 | Guide | |
|  | Title: Design and Development of Controlled Nanoporous Membrane Molecular Separation | | | | |
| 14 | Mahadevprasad K.N. | Ph.D | June 2019 | Guide | |
|  | Title: Engineering the Pore Characteristics in Membranes using Ordered Nanomaterials for Water Treatment Application | | | | |
| 15 | Glenita D’Souza | Ph.D | June 2019 | Guide | |
|  | Title: Ordered Nanoporous Membranes for Water Treatment Application | | | | |
| 16 | Juno Rose Attakin | Ph.D | June 2019 | Guide | |
|  | Title: Designing Seaweed-based Electrocatalysts for Energy Conversion and Storage Applications | | | | |
| 17 | Prahlada | Ph.D | June 2019 | Co-guide | |
|  | Title: Development of Flexible Miniaturized Li-S Batteries | | | | |
| 18 | Aditya D S | Ph.D | June 2022 | Guide | |
|  | Title: Biomass-derived material for wastewater treatment and energy application | | | | |

## **M.Sc**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Name of the Student | Course | Joining | Status |
| 1 | M.R. Nidhi | M.Sc -RO | Aug-2015 | Completed |
|  | Title: Low operating pressure nanofiltration membranes with Functionalized Nanoclay as antifouling and flux promoting agent | | | |
| 2 | Deepika D. | M.Sc -RO | Aug-2016 | Completed |
|  | Title: Separation of Protein using Chitosan-Silver Nanocomposite-based UF Membranes | | | |
| 3 | Vibha Sharma | M.Sc -RO | Aug-2016 | Completed |
|  | Title: Modified Fe-AL Layered Double Hydroxide as Reusable Micro-cleaner for Robust Removal of Anionic Dyes | | | |
| 4 | Smitha Kamath | M.Sc | May-2018 | Completed |
|  | Title: Functionalized Carbon Helix as an Effective Adsorbent for Cationic Dye Removal | | | |
| 5 | Sweedal Annunciata D’souza | M.Sc | May-2018 | Completed |
|  | Title: | | | |
| 6 | Smitha | M.Sc | Dec-2017 | Completed |
|  | Title: Engineering the Hydrophilicity of Ultrafiltration Membrane to Prevent the Organic Fouling using Nanocomposites | | | |
| 7 | Prahlada | M.Sc | May-2019 | Completed |
|  | Title: Deep Eutectic Solvents as an Electrolyte for Rechargeable Zinc ion Batteries | | | |
| 7 | Aleena | M.Sc | June-2019 | Completed |
|  | Title: Biopolymer Based Aerogel Membrane for Water Purification | | | |
| 8 | Asish Jolly | M.Sc | June-2019 | Completed |
|  | Title: Iron Based Magnetic Nanocomposite Aerogel Membrane for Heavy Metal Ion Removing | | | |
| 9 | **Aswathi** | M.Sc | June-2019 | Completed |
|  | Title: Manganese Based Aerogel Membrane for Water Purification | | | |
| 10 | **Keerthana** | M.Sc | June-2019 | Completed |
|  | Title: Carbon Induced Chitosan-Agar for Water Purification | | | |
| 11 | **Shraddha Shetty** | M.Sc | June-2019 | Completed |
|  | Title: Preparation of Chitosan-Bentonite Membrane over Polysulfone | | | |
| 12 | **Vishwanath Reddy** | MSc | June-2019 | Completed |
|  | Title: Preparation and Applications of Nanocomposite-based Self-Cleaning Hollow Fiber Membranes | | | |
| 13 | **Gowri Kakade** | MSc | June-2021 | Completed |
|  | Title: Facile Modification of Polysulfone Composite Membranes via the Incorporation of Fe-MOF Nanoparticles for Humic Acid and Microplastic Removal | | | |
| 14 | **Sahana Jadhav** | MSc | June-2022 | Ongoing |
|  | Title: Discarded ultrafiltration-Hollowfibres membranes modified with chitosan and functionalized bentonite for waste water treatment | | | |
| 15 | **Santosh S P** | MSc | June-2022 | Ongoing |
|  | Title: Biomass-derived membrane for forward osmosis processes | | | |
| 16 | **Komal Desai** | MSc | June-2022 | Ongoing |
|  | Title: Mg-aminoclay based polyamide membrane for multipollutant separation and wastewater treatment | | | |
| 17 | **Pooja Patil** | MSc | June-2022 | Ongoing |
|  | Title: Bio-polymer based Al-aminoclay aerogel for oil-water separation and other emerging pollutants | | | |
| 18 | **Rashmi Dhudati** | MSc | June-2022 | Ongoing |
|  | Title: synthesis of biomass (brinjal waste) derived carbon materials for flexible symmetric supercapacitor | | | |
| 19 | **Priya Koneri** | MSc | June-2022 | Ongoing |
|  | Title: Doping and functionalization of biomass derived carbon material for oxygen evolution reaction | | | |
| 20 | **Vishwanath Ankalgi** | MSc | June-2022 | Ongoing |
|  | Title: Engineering Ultrafast Permeable Saccharum officinarum- derived filters Integrated with Task-Specific Fe−Al double oxides for Robust Water Purification | | | |
| 21 | **Kavya Hegde** | MSc | June-2022 | Ongoing |
|  | Title: CuO-integrated sugarcane bagasse-derived filters for wastewater cleanup | | | |
| 22 | **Soundarya Pawar** | MSc | June-2022 | Ongoing |
|  | Title: Chitosan-gelatin biopolymer duet integrated Fe-Al double oxide supported jute fabric as a potential adsorbent for wastewater cleanup | | | |
| 23 | **Shreya Betageri** | MSc | June-2022 | Ongoing |
|  | Title: Engineering Nano-particle Reinforced Sustainable Bio-polymer Foams for Water Remediation | | | |
| 24 | **Sanjana Talekar** | MSc | June-2022 | Ongoing |
|  | Title: Designing low cost, MOF –induced Polystyrene supported hybrid adsorbent cartridge for Water treatment applications | | | |
| 25 | **Akshata B Hubballi** | MSc | June-2022 | Ongoing |
|  | Title: Polyethersulphone ZnMn2O4 nanocomposite tight ultrafiltration membrane for selective seperation from wastewater. | | | |
| 26 | **Shigufta naz Mavazzan** | MSc | June-2022 | Ongoing |
|  | Title: Sustainable conversion of fresh seaweed to Mn functionalized electrode material for supercapacitor application | | | |

## **SCIENTIFIC AND ACADEMIC ACHIEVEMENTS**

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| --- | --- | --- |
| **Editorial Board** | **Google citations, May**’21 | |
| * Advances in Environmental Chemistry 20/07/2013 * The Scientific World Journal (19/09/2013) * Journal of Science and Technology (15/03/2016) * Journal of Environmentally Friendly Processes   (7May 20) | **All citations**  **h- index**  **i10-index** | **5187**  **37**  **67** |

**Journal Refereed**

1. *Polymer,* ***2.*** *Carbon,* ***3****. Nanoscale,* ***4.****International Journal of Hydrogen Energy,* ***5****. Environmental Technology,* ***6.*** *Advances in Polymer Technology,* ***7****. J. Microscopy and Microanalysis,* ***8.*** *Journal of Hazardous Materials,* ***9****. Biotechnology and Bioengineering,* ***10****. Material Science and Engineering B,* ***11.*** *Journal of Membrane Science,* ***12.*** *Chemical Engineering Journal,* ***13.*** *Medical Engineering and Physics,* ***14****. RSC Advances,* ***15****. Carbon Letters,* ***16.*** *Green Chemistry,* ***17.*** *Korean Journal of Chemical Engineering, 18. Advanced Material Interfaces19. Fibers and Polymers, 20. ACS Sus Chem& Eng*

# **Fellowships and Grants/Professional Memberships**

* **Fellow of Royal Society of Chemistry- Chemical Science: FRSC-Membership No: 515825 (Renewed and Reissued ID is: 726766)**
* Talent Attraction Program Fellowship, Institute IMDEA-Water, Spain (2018)
* 4th JU-AWARD for Research Achievements
* DST-INSPIRE Faculty Award (2013-2018)
* Member of American Chemical Society: Membership No: 31122994
* Postdoctoral Research Fellowship: Qatar National Research Fund [QNRF]
* Member: American Physics Society [APS]
* Member: Material Research Society [MRS]
* Grant from Global Partnership Program [GPP]
* Brain Korea Program [BK 21]
* Project Assistant Fellowship 2004–2007 (Funded by UGC, New Delhi, India).
* Member of the Society for Polymer Science, Dharwad Chapter
* AMAOUT II Fellowship, IMDEA Water Institute, Spain

**NATURE India Research Highlights**

1. **OUTLOOK-Magazine Research Highlight WEBSITE: 09 AUGUST 2017 “Indian Scientists Turn Sugar Industry Waste Into Next-Gen Battery Material”: Link:** [**https://www.outlookindia.com/website/story/indian-scientists-turn-sugar-industry-waste-into-next-gen-battery-material/300202**](https://www.outlookindia.com/website/story/indian-scientists-turn-sugar-industry-waste-into-next-gen-battery-material/300202)
2. **Nature India Highlight:** Green material for making superecapacitors: Link: http://www.natureasia.com/en/nindia/article/10.1038/nindia.2017.112
3. **Seaweed used to make dye-degrading photocatalyst:** doi:10.1038/nindia.2016.87 Published online 13 July 2016; Link: [**http://www.natureasia.com/en/nindia/article/10.1038/nindia.2016.87**](http://www.natureasia.com/en/nindia/article/10.1038/nindia.2016.87)**; work:** Chaudhary, J. P. *et al.*Fabrication of carbon and sulphur-doped nanocomposites with seaweed polymer carrageenan as efficient catalyst for rapid degradation of dye pollutants using solar concentrator. *RSC Adv.* 6**,** 61716–61724 (2016).
4. [**Green process for purifying protein, DNA**](http://www.natureasia.com/en/nindia/article/10.1038/nindia.2015.144)**.** 29 October 2015; | doi:10.1038/nindia.2015.144: Nature India link: <http://www.natureasia.com/en/nindia/article/10.1038/nindia.2015.150> Work: Mondal, D. *et al.* Deep eutectic solvents as new class of draw agent to enrich low abundant DNA and proteins using forward osmosis. *RSC Adv.* **5,** 89539–89544 (2015).
5. [**Seaweed polymer helps make ecofriendly membrane**](http://www.natureasia.com/en/nindia/article/10.1038/nindia.2015.150)**.** 16 November 2015;|doi:10.1038/nindia.2015.150; Nature India link**:** [**http://pubs.acs.org/doi/abs/10.1021/acsami.5b08705**](http://pubs.acs.org/doi/abs/10.1021/acsami.5b08705); Work: Chaudhary, J. P. *et al.*Chitosan-based aerogel membrane for robust oil-in-water emulsion separation. *ACS Appl. Mater. Interfaces***7,** 24957–24962 (2015)
6. A. Mahto, A. Kumar, M. Bhatt, J. P. Chaudhary, A. K. Sharma, P. Paul, **S.K. Nataraj,\*** and R. Meena\* Solvent-free production of nano-FeS anchored Graphene from Ulva fasciata: A Scalable synthesis of super-adsorbent for lead, chromium and dyes, Journal of Hazardous Materials, ***Journal of Hazardous Materials***, ***353,5 July 2018, 190-203.***

1) <https://www.thehindubusinessline.com/news/science/nanomaterial-drawn-from-seaweed-can-clean-toxic-water/article23456953.ece>  
2) <https://paperdabba.com/2018/04/06/nanomaterial-drawn-from-seaweed-can-clean-toxic-water/>  
3) <http://www.easternmirrornagaland.com/nanomaterial-drawn-from-seaweed-can-clean-toxic-water/>  
4) <http://www.indianews-today.com/news/nanomaterial-drawn-from-seaweed-can-clean-toxic-water>  
5) [http://www.thehindu.com/sci-tech/science/csmcri-uses-seaweed-to-remove-lead-chromium-and-dyes-from-wastewater/article23458746.ece?utm](http://www.thehindu.com/sci-tech/science/csmcri-uses-seaweed-to-remove-lead-chromium-and-dyes-from-wastewater/article23458746.ece?utm_campaign=socialflow)

6) <https://www.researchstash.com/2018/04/06/seaweed-nanoparticles-can-clean-toxic-water/>

7) <http://www.downtoearth.org.in/news/nanomaterial-drawn-from-seaweed-can-clean-toxic-water-60113>

**FIRST TIME**

1. Forward Osmosis: Granted 2 patents on potential platform technology based on Forward Osmosis process indigenous membranes.
2. Filed a patent on Bio-based Fluoride, Chromium and colour removal nanocomposite in easy to used Tea Bag and filter cake design, which can take up F >150 mg/g.
3. First time we created stock of Aerogels for multi-contaminants removal.
4. First time we adopted natural fibres as an effective media for treating various contaminated water.
5. Patented (filed) process of converting Fresh Seaweed to scalable graphene oxide and reduced Graphene oxide for Fuel Cell and Energy storage applications.
6. Successfully prepared seaweed based membranes and tested for Oil-Water (wastewater) separation (Patented) and in Direct Methanol Fuel Cells.

**Books Authored (In Progress)**

1. Title: **Advances in Emerging Pollutant Treatment**

Author: **S. K. Nataraj**

Publisher: ***CRC PRESS/TAYLOR & FRANCIS***

ISBN 9781032103242

1. Title: **Advanced Materials and Methods for Water Treatment**

Author: **S. K. Nataraj**

Publisher:I K INTERNATIONAL PVT LTD

**Books Edited (In Progress)**

1. Title: **Advanced Polymeric Functional Materials for Energy and Environment**

Author: **K. S. Nithin**, **S. K. Nataraj, S. Siddaramaih**

Publisher: **Springer**

eBook ISBN:978-981-16-8755-6

**BOOK CHAPTERS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl No** | **Authors** | **Book Series** | **Book Chapter** | **Publisher** |
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**Conference Papers**

1. NC Horti, MD Kamatagi, **SK Nataraj**, [Photoluminescence properties of copper oxide nanoparticles: Effect of solvents](javascript:void(0)), AIP Conference Proceedings 2100 (1), 020048
2. M Sakar, RG Balakrishna, **SK Nataraj**, D Mondal, [International Conference on Green Methods for Separation, Purification and Nanomaterials Synthesis (24-25th April 2018)](javascript:void(0)), Materials Today: Proceedings 9, 491-498

**Conferences and Presentations**

1. Manohara H.M., Supratim C., Kanakaraj A., Debasis Ghosh, Nripat Singh, Kamalesh Prasad, D. Kalpana, D. Mondal,\* and **S. K. Nataraj\*** Presented poster on the topic “Active microcleaner derived from green solvent for water purification and as potential carbocatalyst” in the International conference on Frontiers in materials from basic science to real-time applications (F2DM-2019) held at Jain University, Bangalore, on 13-16th March, 2019. (Awarded Best Poster Presentation)
2. Sachin M. Shet, Manohara H. M., Supratim Chakraborty, Debasis Ghosh, **S. K. Nataraj\*** and D. Mondal\* presented a poster entitled “Biopolymer based free standing membrane for water purification” in the International conference on Frontiers in materials from basic science to real-time applications (F2DM-2019) held at Jain University, Bangalore, on 13-16th March, 2019.
3. Radha N, Kanakaraj A, Manohar H. M, Nidhi M. R, D. Mondal, **S. K. Nataraj\*** and Debasis Ghosh\* presented poster on the topic “Constructing a High Performance Aqueous Zinc Ion Battery cathode with a Organo Vanadyl Hybrid material” in the International conference on Frontiers in materials from basic science to real-time applications (F2DM-2019) held at Jain University, Bangalore, on 13-16th March, 2019. (Awarded Best Oral Presentation)
4. Kanakaraj A., Nidhi M. R., Manohar H. M., Radha., Debasis Ghosh, D. Mondal,\* and **S. K. Nataraj\*** presented Poster on the topic “Biomass Derived Ultrahigh Surface Area Activated Carbon for Supercapacitor and Water Treatment Applications” in an International conference Frontiers in Materials from Basic Science to Real-time Appliacations (F2DM-2019), held at Bangalore on 13-16,March 2019.
5. T. Sarath Kumar, Sachin M. Shet, **S.K. Nataraj\*,** D. Mondal\*, Satyapriya Bhandari\* presented a poster entitled “Review on optoelectronics derived from biobased quantum dots” in the International conference on Frontiers in materials from basic science to real-time applications (F2DM-2019) held at Jain University, Bangalore, on 13-16th March, 2019.
6. Supratim Chakraborty, Manohara H.M., Kanakaraj A., Nidhi M. R., Radha N., Debasis Ghosh, **S. K. Nataraj\*** and D. Mondal\* (\*corresponding author) presented poster “An ecofriendly approach for DNA metallization in DES; a reusable nano bio catalyst for Suzuki coupling reaction” in the F2DM - 2019, held on 13 - 16th March, in CNMS, Jain University, Bengaluru.
7. Radha N, Kanakaraj A, Manohar H. M, Nidhi M. R, D. Mondal, **S. K. Nataraj\*** and Debasis Ghosh\* presented poster on the topic “Boosting the Supercapacitive Performance of Polyaniline Using Nickel-iron Oxide as Adjuvant” in KSTA organized conference held at NMKRV college, Bangalore on 1-2nd February 2019.
8. Manohara H.M., Kanakaraj A., Nidhi M. R., Radha N., Debasis Ghosh, **S. K. Nataraj\*** and D. Mondal\* (\*corresponding author) presented Poster on the topic “Active Micro-cleaner derived from Green Solvent for On-Demand Applications” in an KSTA organized conference held at NMKRV college, Bangalore on 1-2nd February 2019.
9. Kanakaraj Aruchamy, Manohar H.M., Radha., Nidhi M. R, Debasis Ghosh, D. Mondal,\* and **S. K. Nataraj\*** (\*corresponding author) presented Poster on the topic “Ultrafast Synthesis of Exfoliated Manganese Oxide in Deep Eutectic Solvents for Water Purification and Energy Storage” in an International conference KSTA 11th annual conference, held at Bangalore on 1-2,February 2019.
10. Nidhi M.R. A. Kanakaraj, D. Ghosh, D. Mondal\* and **S. K. Nataraj\*** (\*corresponding author) presented poster on the topic of “Antifouling properties of biopolymer-Ag interfaces with polysulfone Ultrafiltration membrane for wastewater Treatment’’ International conference on Nanoscience and Nanotechnology (ICONN 2019), on 28th to 30th January 2019 at SRM University Chennai.
11. Manohara H.M., Kanakaraj A., Nidhi M. R., Radha N., Debasis Ghosh, **S. K. Nataraj\*** and D. Mondal\* (\*corresponding author) presented Poster on the topic “One-pot Synthesis of Solvothermal Carbon from Eutectic Mixture as High-performance Micro/Nano-cleaner and Efficient Carbocatalyst” in an International conference 10th Bangalore India Nano, held at Bangalore on 5-7th December 2018.
12. Supratim C., Manohara H.M., Kanakaraj A., Debasis Ghosh, **S. K. Nataraj\*** and D. Mondal,\* (\*corresponding author) presented poster “An ecofriendly approach for DNA metallization in DES; a reusable nano bio catalyst for Suzuki coupling reaction” in the 11th Annual KSTA conference, held on 1 - 2nd Feb 2018, in NMRKV college for women, Bengaluru.
13. Kanakaraj Aruchamy, Manohar H.M., Radha., Nidhi M. R, Debasis Ghosh, D. Mondal,\* and **S. K. Nataraj\*** (\*corresponding author) presented Poster on the topic “Green solvent mediated ecofriendly and Ultrafast Synthesis of Exfoliated Manganese Oxide in room temperature for dye removal and supercapacitor” in an International conference 10th Bangalore India Nano, held at Bangalore on 5-7th December 2018.
14. K. Aruchamy, R. N, Manohara H. M, Nidhi M. R, D. Mondal, D. Ghosh\* and **S. K. Nataraj\*** presented poster on the topic “One-step Green Route Synthesis of Spinel ZnMn2O4/MWCNT Nano-composites as a Novel Electrode Material for Supercapacitors” in International Conference on Green methods for, Separation and Purification and Nanomaterial Synthesis (GMSPNS), on 24th & 25th April 2018 at CNMS Jain University, Bangalore.
15. **Kanakaraj Aruchamy,** Meena Bisht, P. Venkatesu, Nidhi M. R, Debasis Ghosh, Dibyendu Mondal,\* and Sanna Kotrappanavar Nataraj\* presented oral presentation on the topic “Green Conversion of Biomass to Functionalized Helical Carbon as a Support for Cytochrome C” in International Conference on Green methods for, Separation and Purification and Nanomaterial Synthesis **(GMSPNS),** on 24th & 25th April 2018 at CNMS **Jain University**, Bangalore.
16. **Kanakaraj Aruchamy,** Radha N, Manohara H. M, Nidhi M. R, Dibyendu Mondal,Debasis Ghosh\* and Sanna Kotrappanavar Nataraj\* presented poster on the topic “One-step Green Route Synthesis of Spinel ZnMn2O4/MWCNT Nano-composites as a Novel Electrode Material for Supercapacitors” in International Conference on Green methods for, Separation and Purification and Nanomaterial Synthesis **(GMSPNS),** on 24th & 25th April 2018 at CNMS **Jain University**, Bangalore.
17. **Nidhi M. R.,** Kanakaraj Aruchamy, Vibha Sharma, D. Deepika, and Sanna Kotrappanavar Nataraj\* presented Poster on the topic  “Functionalized Nanoclay as Antifouling and Flux Promoter in Nanofiltration and FO membrane” in an International conference **GCNOC**, held at **Mangalore** on 27- 28th February 2017.
18. Manohara H.M., Kanakaraj A., **Nidhi M. R.,** Radha N., Debasis Ghosh, Dibyendu Mondal,\* and Sanna Kotrappanavar Nataraj\* presented Poster  on the topic “Bio nanocomposite-based magnetic aerogel membrane for selective separation and removal of emerging pollutants” in an International conference **9th Bangalore India Nano,** held at **Bangalore** on 7- 8th December 2017.
19. Kanakaraj Aruchamy, Meena Bisht, P. Venkatesu, Nidhi M. R, Debasis Ghosh, Dibyendu Mondal,\* and Sanna Kotrappanavar Nataraj\* presented Poster  on the topic “Deep Eutectic Solvent Mediated Solvothermal conversion of Biomass to Protein Friendly Spring like Functional carbon nanomaterials” in an International conference **9th Bangalore India Nano,** held at **Bangalore** on 7- 8th December 2017.
20. **Nidhi M.R.,** A. Kanakaraj, Manohar H.M., Radha N,  Debasis Ghosh, Dibyendu Mondal, S. K. Nataraj\*, presented Poster  on the topic “Silver based Nanocomposite coating prevent biofilm formation during ultrafiltration of tannery wastewater’’, International conference on Nanomaterials and their Applications, held at **Mysore** on 1st and 2nd March 2018.
21. **Nidhi M.R.,** A.Kanakaraj, Manohar H.M., Radha N., D.Ghosh, D.Mondal, S. K. Nataraj\*, Presented poster on the topic of ‘’ Biopolymer Modified Ultrafiltration Membrane for Efficient Tannery Wastewater Treatment’’, International Conference on Green methods for Separation and Purification and Nanomaterial Synthesis **(GMSPNS),**, on 24th & 25th April 2018 at CNMS **Jain University**, Bangalore.
22. **Nidhi M.R.** attended National Conference on Jnana Chilume held at **Jain University**, Bangalore 25th March 2017.
23. **Manohara H.M.,** Vibha T. Sharma, Kanakaraj A., Nidhi M. R., Radha N., Debasis Ghosh, Dibyendu Mondal,\* and Sanna Kotrappanavar Nataraj\* presented Poster  on the topic “Bio nanocomposite-based magnetic aerogel membrane for selective separation and removal of emerging pollutants” in an International conference **9th Bangalore India Nano,** held at **Bangalore** on 7- 8th December 2017.
24. **Manohara H.M.,** Kanakaraj A., Nidhi M. R., Radha N., Debasis Ghosh, Dibyendu Mondal,\* S. K. Nataraj\* presented Poster  on the topic “ Green Solvent Mediated Facile Preparation of Potential Micro/Nano Cleaner for the Abatement of Emerging Pollutants from Water” in an **International conference on Nanomaterials and their Applications**, held at **Mysore** on 1st and 2nd March 2018.
25. **Manohara H.M.,** Kanakaraj Aruchamy, Nidhi M. R., Radha N., Debasis Ghosh, Dibyendu Mondal\*, S. K. Nataraj\* presented Poster on the topic “Solvothermal Carbon Prepared from Green Solvents as High-performance Micro-cleaner for Cationic Pollutants” in an International Conference on Green methods for Separation and Purification and Nanomaterial Synthesis **(GMSPNS),** on 24th & 25th April 2018 at CNMS **Jain University**, Bangalore.
26. Manohara H.M., Kanakaraj A., Nidhi M. R., **Radha N.,** Debasis Ghosh, Dibyendu Mondal,\* and Sanna Kotrappanavar Nataraj\* presented Poster  on the topic “Bio nanocomposite-based magnetic aerogel membrane for selective separation and removal of emerging pollutants” in an International conference **9th Bangalore India Nano,** held at **Bangalore** on 7- 8th December 2017.
27. **Radha N.** in an International Conference on Green methods for Separation and Purification and Nanomaterial Synthesis **(GMSPNS),** on 24th & 25th April 2018 at CNMS **Jain University**, Bangalore.
28. **Supratim Chakraborty** attended an international conference on Green methods for Separation and Purification and Nanomaterial Synthesis **(GMSPNS),** on 24th & 25th April 2018 at CNMS **Jain University**, Bangalore.
29. Manohara H.M., **Vibha T. Sharma,** Kanakaraj A., Nidhi M. R., Radha N., Debasis Ghosh, Dibyendu Mondal,\* and Sanna Kotrappanavar Nataraj\* presented Poster  on the topic “Bio nanocomposite-based magnetic aerogel membrane for selective separation and removal of emerging pollutants” in an International conference **9th Bangalore India Nano,** held at **Bangalore** on 7- 8th December 2017.
30. **Vibha Sharma,** H.M. Manohara, A. Kanakaraj, M.R. Nidhi, D.Ghosh, D.Mondal, and S. K. Nataraj\*, presented Poster  on the topic “Reusable magnetic aerogel membranes for selective separation and removal of emerging pollutants” in an National Conference on Recent Advances in Chemistry and Material Sciences (**RACMS-2018**) on 3rd February 2018 at **Jain University,** Bengaluru.
31. **Vibha Sharma** attended National Conference on Jnana Chilume held at **Jain University**, Bangalore 3rd Feb 2018.
32. **Vibha Sharma,** H.M. Manohara, A. Kanakaraj, M.R. Nidhi, D.Ghosh, D.Mondal, and S. K. Nataraj\*, presented Poster  on the topic Reusable magnetic aerogel membranes for selective separation and removal of emerging pollutants in an **International conference on Nanomaterials and their Applications**, held at **Mysore** on 1st and 2nd March 2018.
33. **Vibha Sharma,** H.M. Manohara, A. Kanakaraj, M.R. Nidhi, D.Ghosh, D.Mondal, and S. K. Nataraj\* presented Poster on the topic “Reusable active micro-cleaner for selective separation and removal of emerging pollutants”  in an international conference on Green methods for Separation and Purification and Nanomaterial Synthesis **(GMSPNS),** on 24th & 25th April 2018 at CNMS **Jain University**, Bangalore.
34. A. Kanakaraj, M. Bisht, P. Venkatesu, Nidhi M. R, D. Ghosh, D. Mondal, and S. K. Nataraj a\* Conversion of Biomass to Bio-inspired Helical Carbon Composites, as a host for Cytochrome C for Facile Biocatalysis presented at Gujarat Science Congress on 4,5-February 2018, Bhavanagar, India.
35. V. Sharma, H.M. Manohar, A. Kanakaraj, M.R. Nidhi, D.Ghosh, D.Mondal, and S. K. Nataraj\*, Reusable magnetic aerogel membranes for selective separation and removal of emerging pollutants, National Conference Recent Advances in Chemistry and Material Sciences (RACMS-2018) on 3rd February 2018 at Jain University, Bengaluru.
36. A.Kanakaraj, M. Bisht, P. Venkatesu, Nidhi M.R,D. Ghosh, D. Mondal, and S.K. Nataraj, Deep Eutectic solvent Mediated Solvothermal Conversion of *Partheniumhysterophorous* to Protein Friendly Spring-Like Functional Carbon Nanomaterials, Bengaluru India Nano 9th Edition, at The Lalith Ashoka, on 7-8th December-2017, Bengaluru.
37. H.M. Manohar, V. Sharma, A. Kanakaraj, M.R. Nidhi,D. Ghosh, D. Mondal, and S. K. Nataraj\*, Bionanocomposite-based magnetic aerogel membrane for selective separation and removal of emerging pollutants, Bengaluru India Nano 9th Edition, at The Lalith Ashoka, on 7-8th December-2017, Bengaluru.
38. Nidhi M.R., A. Kanakaraj, Vibha Sharma, Deepika and S.K. Nataraj on “Functionalized clay as antifouling and flux promoters in Nanofiltration and forward osmosis applicaitions” at *International Conference on Green Chemistry & Nanotechnology-Opportunities and Challenges* (GCNOC-2017) held at St. Aloysius College, Mangalore 27-28th February, 2017.
39. A. Mahto, R. Meena and S.K. Nataraj\*, Forward Osmosis: A Membrane Based Energy Efficient Process for Waste Treatment, Biomacromolecules enrichment and value addition at ***International Conference on Advanced Materials and Technology 2016*,**  **ICMAT-16** held at Mysuru on 26th May 2016 to 28th May 2016.
40. D. Mondal, K. Prasad, S.K. Nataraj,\* P. Ghosh, Exploring the potential of green drawing agents for dewatering of feed solutions through energy less forward osmosis process. ***RAIC-2015, Recent Advances in Chemical Sciences***, **21-24 August**, Jaipur, India. (Received: **BEST PRESENTATION AWARD**)
41. A. Mahto, D. Mondal, K. Prasad and S.K. Nataraj, In-situ Synthesis of Magnetic Nanoparticles and their Use as Sustainable Draw Solutions for Forward Osmosis Applications, ***CRSI, 7-9th February 2015, National Chemical Laboratory***, PUNE, India.
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23. S.K. Nataraj, T.B.N. Nogc, B.H. Kim and K.S. Yang, Conference of Korean Carbon Society, PAN-Based Highly Porous Carbon Nanofibers Induced by Fe, held at Yonsei University, Seoul, South Korea, 22-23 Nov,2007.
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25. S.K. Nataraj, S. Roy and T.M. Aminabhavi, Preparation, Modification and Characterization of Ceramic Membrane Modules for Water Treatment;Presented t *Macro-2006* Presented at NCL, Pune on Dec. 17-20, **2006** in *Macro-2006*, India.

**Teaching/Research Supervision experience**

1. Course (20 hour): Battery-Primary, Battery-Secondary and Fuel cells at CNMS, Jain University
2. Course (20 hour): Cyclic Voltammetry, X-ray Spectroscopy and Electron Spectroscopy at CNMS Jain University
3. AcSIR Course Work (10 hour): Advanced Separation and Purification Techniques at CSIR-CSMCRI, Bhavnagar
4. Course (10 hour): Membrane Separation Processes, Polymer Rheology, Plastic Processing and Engineering at Centre of Excellence in Polymer Science, Karnatak University.
5. Supervised 3 BE Projects and 12 M.Sc. Projects

### **Professional Courses Attended**

1. **Entrepreneurial Training: Centre for Entrepreneurial Learning, Judge Business School, University of Cambridge. UK.**
2. **Induction Course: Health, Chemical Safety and Environment**
3. **Course on Nano-Hazard and Health Safety**
4. **Undergone training in CIPET-Hyderabad on “Plastic Processing and Engineering”**

**Personal Details**

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| Full Name  Date of Birth  Marital Status  Nationality  Languages Known | Sanna Kotrappanavar Nataraj  4th February, 1981  Married  Indian  English, Kannada, Hindi and Telugu |

# I hereby declare that the above furnished is true to my knowledge.

# (S.K. Nataraj)