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Qualifications

- **Ph.D.** on “*Development and performance evaluation of carbon-polymer composite bipolar plate for proton exchange membrane fuel cell*” from Department of Chemical Engineering, Indian Institute of Technology Guwahati, Assam, India (July, 2011).
- **M.Tech. in Energy Technology**, Department of Energy, Tezpur University, Assam, India (June, 2006).
- **M.Sc. in Physics**, Department of Physics, Tezpur University, Assam, India (June, 2004).
- **B.Sc. in Physics**, Department of Physics, Pub-Kamrup College, under Gauhati University, Assam, India (June, 2002).

Employment

- **Assistant Professor** in Department of Energy, Tezpur University, India, since September 2014.
- **Postdoctoral Research Associate** in Imperial College London, UK, January 2012 – September 2014.

Research experience

- Postdoc in Imperial College London, UK, since January 2012 to October 2014, in an Indo-UK joint research initiative funded by Research Council UK and DST-India. The title of the project is “Mind the Gap - jumping the hurdles limiting polymer fuel cell performance and commercialisation”. The collaborators are IIT Delhi, IIT Madras, Centre for Fuel Cell Technology – Chennai, Imperial College London, University College London, and Newcastle University. The project was also sponsored by Intelligent Energy, UK Trade & Investment (UKTI), National Physical Laboratory UK, and Bac2 Limited.
- Worked concurrently with Ph.D. in a sponsored project entitled “Development and performance evaluation of carbon-polymer composite bipolar plate for proton exchange membrane fuel cell”, in Department of Chemical Engineering, IIT Guwahati (PI: Dr. Anil Verma, tenure: 2007–2010). The project was funded by the Board of Research in Nuclear Sciences, Department of Atomic Energy, Government of India.
- “Development of advanced composite bipolar plate for proton exchange membrane fuel cell”, M. Tech. Project, National Physical Laboratory, New Delhi, India.
- “Design and Fabrication of Microstrip Devices Deposited on Polystyrene Substrate Doped with Alumina (Al_2O_3) and Titania (TiO_2)”, M.Sc. Project, Department of Physics, Tezpur University, Tezpur, Assam, India.

Teaching experience

- (i) Fluid mechanics, (ii) Engineering drawing, (iii) Engineering mechanics, and (iv) Fuel cell technology

Awards and achievements

- Achieved **Best Paper** award for the paper "Efficient composite bipolar plate reinforced with graphene for proton exchange membrane fuel cell", in The 3rd International Conference on Fuel Cell & Hydrogen Technology 2011, 22–23 November, 2011, Kuala Lumpur, Malaysia.
- Received **Senior Research Fellowship** as Teaching Assistantship from IIT Guwahati, for the period January 2007 to December 2010.
- **Gold medalist** during M. Tech. in Energy Technology from Tezpur University, India.
- Received **Engineering Merit Scholarship** from Director of Technical Education, Assam, for the year June, 2004 – June, 2006.
- Recognized by Marquis Who's Who in the year 2010–2011, for the contribution in the field of Science and Engineering.

Publications

- Monograph – 01
- Articles in peer reviewed international journal – 12 + 01 under revision
- Articles in the proceedings of international conferences – 09
- Articles in the proceedings of national conferences – 03

Subject reviewer of international journals (selected)

- Composite Science and Technology (Willey – VCH, Germany)
- Electrochemistry Communications (Elsevier)
- Energy & Fuels (ACS)
- European Polymer Journal (Elsevier)
- Fuel cells (Willey – VCH, Germany)
- International Journal of Hydrogen Energy (Elsevier)
- Journal of Applied Polymer Science (Willey – VCH, Germany)
- Materials Chemistry and Physics (Elsevier)
- Polymer Engineering and Science (Willey – VCH, Germany)

Keynote lecture

- "Solar energy – India's perspective", in summer schools in Department of Chemistry, Imperial College London, 8 August, 2013.
- "Maxwell's equations and his contributions", in summer schools in Department of Chemistry, Imperial College London, 6–7 August, 2012.
- "Composite bipolar plate for proton exchange membrane fuel cell", in AICTE Sponsored QIP Short Term Course on Fuel Cell and Hydrogen Technology, 14–18 September, 2009, Center for Energy, IIT Guwahati, Guwahati, Assam, India.

Conference and workshop experience

- Invited for showcasing UK-India collaborative Research and Innovation in "Celebrating Collaboration: 5 years of RCUK India", New Delhi, India, 12–13 November, 2013.
- Indo-US workshop on Energy and Environment: Challenges and Research Opportunities, 12–15 December, 2010, New Delhi, India.

- International Symposium & Exhibition on Fuel Cell Technologies: FUCETECH 2009, 11–13 November, 2009, Mumbai, India.
- International Congress on Environmental Research, 18–20 December, 2008, Goa, India.
- Chemcon 2007, in the 60th Annual Meeting of Indian Institute of Chemical Engineers, 27–30, December, 2007, Kolkata, West Bengal, India.
- National Conference on Frontiers in Chemical Engineering, 12–14 December, 2007, IIT Guwahati, Assam, India.
- 22nd National Convention of Mechanical Engineers on “Energy Technologies- Strategies for Optimal Utilization of Natural Resources”, 9–10 September, 2006, Indian Institute of Engineers, Guwahati, Assam, India.
- “Training Cum Workshop on Integrated Rural Energy Planning”, 28–30 January, 2005, Department of Energy, Tezpur University, Tezpur, Assam, India.
- “Training Cum Demonstration of Bamboo Based Biomass Gasifier”, 20th November, 2004, Department of Energy, Tezpur University, Tezpur, Assam, India.
- National Workshop on “Advanced Material Processing and Characterization”, 29–30 October, 2003, Department of Physics, Tezpur University, Tezpur, Assam, India.

Membership of professional bodies

- Editorial board member of American Journal of Energy Engineering
- International Society for Electrochemistry (Membership no: 11735)
- Enrolled for expert committee member of AICTE in Engineering Science.

Areas of expertise

- Design, development, and analysis of Proton Exchange Membrane Fuel Cell
- Graphene synthesis, characterisation, and its application
- Electrochemical analyses
- Gas phase recovery of contaminated fuel cell
- Development and characterisation of carbon polymer nano-composite
- Fabrication and characterisation of microstrip devices

List of publications

Monograph:

1. **BK Kakati**, A Verma, “Carbon-Polymer Composite Bipolar Plate for PEM Fuel Cell”, **ISBN: 978-3-8465-0311-9**, 2011, Lap-Lambert Academic Publishing, Germany.

International Journal Publications:

1. **BK Kakati**, ARJ Kucernak, “Gas phase recovery of hydrogen sulfide contaminated polymer electrolyte membrane fuel cells”, *Journal of Power Sources* 2014, **252**, 317-326 (ISSN: 0378-7753; **impact factor: 4.675**)

2. **BK Kakati**, A Ghosh, A Verma, "Efficient composite bipolar plate reinforced with graphene for proton exchange membrane fuel cell", *International Journal of Hydrogen Energy* 2013, **38** (22), 9362–9369. (ISSN: 0360-3199; **impact factor: 3.548**)
3. **BK Kakati**, D Sathiyamoorthy, A Verma, "Semi-empirical modeling of electrical conductivity for composite bipolar plate with multiple reinforcements", *International Journal of Hydrogen Energy* 2011, **36** (22), 14851–14857. (ISSN: 0360-3199; **impact factor: 3.548**)
4. **BK Kakati**, D Sathiyamoorthy, A Verma, "Electrochemical and mechanical behavior of carbon composite bipolar plate for fuel cell", *International Journal of Hydrogen Energy* 2010, **35** (9), 4185–4194. (ISSN: 0360-3199; **impact factor: 3.548**)
5. **BK Kakati**, VK Yamsani, KS Dhathathreyan, D Sathiyamoorthy, A Verma, "Electrical conductivity of composite bipolar plate for fuel cell application", *Carbon* 2009, **47** (10), 2413–2418. (ISSN: 0008-6223; **impact factor: 5.868**)
6. **BK Kakati**, KR Guptha, A Verma, "Fabrication of composite bipolar plate for Proton Exchange Membrane Fuel Cell", *Journal of Environmental Research and Development* 2009, **4** (1), 202–211. (ISSN: 0973-6921; **impact factor: 0.607**)
7. HN Sugali, **BK Kakati**, A Verma, "Accelerated solar photo catalytic degradation of phenol using titanium dioxide", *Journal of Environmental Research and Development* 2009, **3** (3), 763–772. (ISSN: 0973-6921; **impact factor: 0.607**)
8. **BK Kakati**, V Mohan, "Development of low cost advanced composite bipolar plate for P.E.M. fuel cell", *Fuel Cells* 2008, **08** (1), 45–51. (ISSN: 1615-6854; **impact factor: 3.149**)
9. SR Dhakate, RB Mathur, **BK Kakati**, TL Dhami, "Properties of graphite-composite bipolar plate prepared by compression molding technique for PEM fuel cell", *International Journal of Hydrogen Energy* 2007, **32** (17), 4537–4543. (ISSN: 0360-3199; **impact factor: 3.548**)
10. **BK Kakati**, D Deka, "Differences in physico-mechanical behaviors of resol and novolac type phenolic resin based composite bipolar plate for proton exchange membrane (PEM) fuel cell", *Electrochimica Acta* 2007, **52** (25), 7330–7336. (ISSN: 0013-468; **impact factor: 3.777**)
11. **BK Kakati**, D Deka, "Effect of resin matrix precursor on the properties of graphite composite bipolar plate for PEM fuel cell", *Energy & Fuels* 2007, **21** (3), 1681–1687. (ISSN: 0887-0624; **impact factor: 2.853**)
12. **BK Kakati**, KR Guptha, A Verma, "Numerical optimization of channel and rib width of proton exchange membrane fuel cell bipolar plate", *International Journal of Chemical Sciences* 2007, **5** (4), 1590–1602. (ISSN: 0972-768X; **impact factor: 0.078**)

International Journal Publications (submitted manuscript):

13. T Lopes, M Ho, **BK Kakati**, ARJ Kucernak, "Assessing the performance of Reactant Transport Layers and Flow Fields towards oxygen transport: A New Imaging Method Based on Chemiluminescence", *Journal of Power Sources* 2014, **submitted manuscript** (ISSN: 0378-7753; **impact factor: 4.675**)

Published in International Conference Proceedings:

1. **BK Kakati**, ARJ Kucernak, "Mind the gap: jumping the hurdles limiting polymer electrolyte fuel cell performance and commercialisation", in Proceeding of Professor CNR Rao 80th Birthday Symposium, **23–24 June, 2014**, Chemistry Centre, Burlington House, London, UK.
2. M Kulkarni, YPatil-Sen, AM Manthanwar, **BK Kakati**, A Iglic, CV Kulkarni, "Modulating nanoscale behaviour of Monoolein by adding biologically relevant molecules", in Proceeding of Professor CNR Rao 80th Birthday Symposium, **23–24 June, 2014**, Chemistry Centre, Burlington House, London, UK.
3. CV Kulkarni, AM Manthanwar, **BK Kakati**, "Novel computational and experimental approaches for the optimal design and synthesis of self-assembling molecules", in Proceeding of Professor CNR Rao 80th Birthday Symposium, **23–24 June, 2014**, Chemistry Centre, Burlington House, London, UK.
4. **BK Kakati**, A Verma, "Efficient composite bipolar plate reinforced with graphene for proton exchange membrane fuel cell", in Proceedings of The 3rd International Conference on Fuel Cell & Hydrogen Technology 2011, **22–23 November, 2011**, Kuala Lumpur, Malaysia.
5. **BK Kakati**, A Ghosh, A Verma, "Graphene reinforced composite bipolar plate for polymer electrolyte membrane fuel cell", in Proceedings of ASME 2011 5th International Conference on Energy Sustainability & 9th Fuel Cell Science, Engineering and Technology Conference 2011, 301□307, **7–10 August, 2011**, Washington DC, USA. (ISBN: 978-0-7918-5469-3)
6. **BK Kakati**, A Verma, "Development of composite bipolar plate for PEM Fuel Cell", in *Second International Conference on Materials for the Future*, **23–25 February, 2011**, Kerala, India.
7. **BK Kakati**, VK Yamsani, D Sathiyamoorthy, A Verma, "Semi-empirical modeling of electrical conductivity for composite bipolar plate with multiple reinforcements", in *International Symposium & Exhibition on Fuel Cell Technologies: FUCETECH 2009*, **11–13 November, 2009**, Mumbai, India.
8. **BK Kakati**, KR Guptha, A Verma, "Fabrication of composite bipolar plate for Proton Exchange Membrane Fuel Cell", in *International Congress on Environmental Research*, **18–20 November, 2008**, Goa, India (*published*).
9. **BK Kakati**, HN Sugali, A Verma, "Accelerated solar photo catalytic degradation of phenol using titanium dioxide", in *International Congress on Environmental Research*, **18–20 November, 2008**, Goa, India (*published*).

Published in National Conference Proceedings:

10. **BK Kakati**, R Dhruw, A Verma, "Performance of polymer electrolyte membrane fuel cell using vinyl ester resin based composite bipolar plate", in *Chemcon 2010*, **27–29 December, 2010**, Chennai, India.
11. **BK Kakati**, P Kumar, R Dhruw, A Verma, "A structure oriented model for the electrical conductivity of composite bipolar plate", in *CHEMREFERENCE 09*, **22–23 August, 2009**, Indian Institute of Technology Madras, Chennai, India.
12. **BK Kakati**, KR Guptha, A Verma, "Numerical optimization of channel and rib width of polymer electrolyte membrane fuel cell bipolar plate", in National Conference on Frontiers in Chemical Engineering, **12–14 December, 2007**, IIT Guwahati, Assam, India, (*published*).