Prithi Jayaraj

Project Junior Scientist

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EDUCATION

Indian Institute of Technology Madras (IITM)
PhD (*Interdisciplinary)* — *Sep 2014 – Present*

Anna University, Coimbatore
M. Tech (NanoTechnology) — *Sep 2010 – July 2012*

Avinashalingam University, Coimbatore
BE (Biomedical Instrumentation Engineering) — *June 2006 – April 2010*

RESEARCH EXPERIENCE

CENTER FOR FUEL CELL TECHNOLOGY-ARCI

Nov 2017 – Present **Junior Scientist**

1. *PEMFC system development*

Sep 2012 to Nov 2017 **Senior Research Fellow**

1. *"Mind The Gap" - (A Collaborative project with Imperial College London, University College for London, New Castle University, IIT-Madras and IIT-Delhi) - Sponsored by DST (India) & RCUK (UK)*
   Air contamination studies on Polymer Electrolyte Membrane (PEM) Fuel Cells
   - Explored various catalysts for tolerance towards air contaminant, SO_2.
   - SO_2 Contamination studies on single cell, Stack, High temperature stack.
2. *Durability of Cathode catalyst in PEMFC*
   - Carbon corrosion due to Start Up and Shut down of fuel cells
   - Modified carbon support and non-carbon supports for the cathode

IGCAR & BARCF FACILITIES, KALPAKKAM

Nov 2011 – June 2012 **Project Research Intern** (M.Tech Project)

1. *Electrospun polymer matrices for sustained and controlled drug delivery*
   - Electro spinning of biocompatible and biodegradable polymer nanofibrous mats, incorporation of antibiotic and drug release studies

RESEARCH AREAS OF INTEREST

PEMFC system development, PEMFC durability, Electro catalysis, Nanomaterials.

PUBLICATIONS

1. **J.A. Prithi,** Rajalakshmi N, Ranga Rao G. *Nitrogen Doped Mesoporous Carbon Support for Oxygen Reduction Reaction in Polymer Electrolyte Membrane (PEM) Fuel Cells* **–** IJHE 2017.
2. **J.A. Prithi**, N. Rajalakshmi, K. S. Dhathathereyan. *Mesoporous Platinum as Sulfur Tolerant Catalyst for PEMFC Cathodes* – J Solid State Electrochem 21 (2017) 3479 - 3485.
3. **J.A. Prithi**, B. Sasank Viswanath, Rajalakshmi N, and Dhathathreyen K S. *Studies on PEMFC Stack for SO_2 Contamination at Air Cathode***,** Fuel cells 17 (2017) 308 – 314.
4. **J.A. Prithi**, R.I. Jafri, N. Rajalakshmi, K.S. Dhathathreyan, *Nitrogen doped graphene as catalyst support for sulfur tolerance in polymer electrolyte membrane fuel cells*, Graphene 2 (2014) 134 – 138.
5. **J.A. Prithi**, P. Karthika, N. Rajalakshmi, K.S. Dhathathreyan, *Mitigation studies of sulfur contaminated electrodes for PEMFC*, Int. J. Hydrogen Energy. 39 (2014) 12045 – 12051.
6. R. Dave, **J.A.Prithi**, P. K. Ajikumar, H. Joshi, T. Mathews, V. P. Venugopalan, P.K. Ajikumar, V.P. Venugopalan, *Endogenously triggered electrospun fibres for tailored and controlled antibiotic release*, J. Biomater. Sci. Polym. Ed. 24 (2013) 1305 – 1319.

CONFERENCE PRESENTATIONS

1. **J.A. Prithi**, Rajalakshmi N, Ranga Rao G. *Durable zirconium carbide supports for oxygen reduction reaction in PEMFC* at Fuel Cell and Hydrogen technical conference - (FCH2 2017), May 31st –June 1st 2017, Birmingham University, Birmingham, UK.
2. **Prithi J A,** Catherine Swetha A, Rajalakshmi N. *Nafion based composite electrolytes for PEMFC- Hydrocarbon based membrane at* International Conference on Membrane Technology and its applications (MEMSEP-2017), 21st - 23rd Feb 2017 at NIT, Tiruchirappalli, India **– Conferred "Best Oral Presentation Award".**
3. **Prithi J A**, Rajalakshmi N, Ranga Rao G. *Nitrogen Doped Mesoporous Carbon Support for Oxygen Reduction Reaction in Polymer Electrolyte Membrane (PEM) Fuel Cells* at 11th International Symposium on Advances in Electrochemical Science and Technology *(iSAEST-11)*, 8-10 Dec 2016, Chennai, India – **Conferred "Best Paper Award".**
4. **Prithi J A**, Rajalakshmi N, Ranga Rao G, *Nitrogen doped mesoporous carbon as catalyst support for ORR in PEMFC*, at Chemistry in house symposium (CiHS - 2016) - Poster, Aug 2016, Department of chemistry, IIT Madras, Chennai, India.
5. **Prithi J A**, Rajalakshmi N, Karthika.P and Dhathathreyan K S. *Studies on sulfur tolerance with mesoporous electro catalysts* – Poster, Gordon research seminar and conference (GRS & GRC 2014), Aug 2014, Bryant University, Rhode Island USA. **(Travel grant from DST-SERB).**
6. N Rajalakshmi, **J.A. Prithi**, R. Imran Jaffri and K.S.Dhathathreyan *Graphene based Pt electrocatalyst for SO_2 tolerance in PEMFC,* 10th Hypothesis Conference, Herroit University, Edinburgh, UK, 2013.

MEMBERSHIP IN PROFESSIONAL BODIES

1. Electrochemical Society (ECS) Student membership

PROFESSIONAL SKILLS

- Hands on Experience: Operation of XRD, SEM, FESEM, TGA, BET, Electrospinning, Micro GC, Porometer.
- Tools: Origin, MatLab, LabVIEW **(CLAD Qualified)**

AWARDS

1. 'Best Oral Presentation award' at International Conference on Membrane Technology and its applications (MEMSEP-2017).
2. 'Best Paper Award' at 11th International Symposium on Advances in Electrochemical Science and Technology *(iSAEST-11).*
3. Certified as a CLAD (Certified LabVIEW Associate Developer) by National Instruments (2009).

WORKSHOPS / CONFERENCE ATTENDED

- Conference on 'Bringing the Nanoworld together' organized by Oxford instruments at IITM, Nov 2015
- Workshop on 'Powder, Nano and thin film characteristics using X-Ray diffraction" at Crystal growth centre, Anna University, Chennai, India, Aug 2013
- Workshop on 'Bioinformatics and soft Computing' Anna University of Technology, Coimbatore
- Conference on 'Recent Trends in Nanobiotechnogy' Anna University of Technology, Coimbatore.
- National Seminar on 'Emerging Trends in Nanotechnology' at Avinashilingam University for Women, Coimbatore.

ACADEMIC PROJECTS

1. Electrospun polymer matrices for sustained and controlled drug delivery — Nov 2011 – June 2012
2. Despeckling of Medical Ultrasound images using Neural Network and Fuzzy Logic — Jan-April 2010
   Platform: Image processing – MatLab 7
3. Voice Aided System using American Sign Language — May-July 2009
   Platform: Embedded Systems

EXTRA CURRICULAR ACTIVITIES

- Joint Secretary of the Departmental Association 'BMETA' for the year 2007-2008
- Active member of NSS during 2006 -2008
- Philately and Numismatics