

CV of Dr.N.Rajalakshmi

1. **Name** :N.Rajalakshmi

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2. **Designation:** Senior Scientist and Team leader

3. **Contact Details:** Centre for Fuel Cell Technology ARCI, IIT Madras Research Park, 6,Kanagam road, Taramani, Chennai 600113, India, email: rajalakshmi@arci.res.in, 98411 88467

4. **Academic qualifications:**

B.Sc Physics – Madras University , 1980 – I class – 86%

M.Sc Physics – AnnamalaiUniversity , 1982 - I class – 62%

Ph.D Physics- IIT Madras, 1987

M.B.A - Alagappa University – 2005 I class

5. **Post doctoral programme** : TH Darmstadt, Germany, University of Switzerland, Geneva- 1987-2004

6. **Current Fields of Research Interest**

➤ **Fuel cell systems**

PEM Fuel Cell

- ❖ Fuel cell Electrode
Nanoelectrocatalysts
- ❖ Low cost fuel cell components
 - Bipolar plates,
 - Non Noble Metal Catalyst
- ❖ Combined water and Thermal Management
- ❖ Fuel cell control
- ❖ Power converters
- ❖ Fuel cell stacks –
 - Flow field design development ,Stack design development ,Stack Testing and Analysis
- ❖ Fuel cell systems
 - Development of PEMFC system for stationary applications,
 - Development of PEMFC system for Transport applications

➤ **Hydrogen storage**

- Metal Hydrides
- Carbon based Materials

➤ **Batteries**

- Li Batteries, Supercapacitors, Metal air batteries

7. **Projects**

- NIMITLI- Fuel cells for distributed power 5 kW –Team Member– CSIR -2001-2003
- Hydrogen storage in carbon nanotubes- DST – Project coinvestigator 2001-2003
- CFCT Phase 1 – Team member –Fuel cells – (2004-2009)
- Electrochromism in Metal hydrides Project investigator - DST – 2004-2007
- CFCT Phase 2 – Team Member – Fuel cells - (2009- 2014)
- MNRE –CoInvestigator – Hydrogen storage – (2009- 2015)
- Indo-UK (DST-EPSRC) – Project lead Investigator- Fuel cells for commercialization jumping the hurdles (Three UK and Three Indian Institutes) – (2011- Ongoing)

- Indo-Japan –JSPS – 2014 – Completed
- Development of Zn-Air batteries – DST – 2015-On going (CoPI)
- Demonstration of 5 KW PEMFC system at GAIL R & D facility, New Delhi 2017 – completed
- Demonstration of 5 kW PEMFC system at NLC, Neyveli- 2016 - Completed
- Development of metallic bipolar plates for PEMFC - DST –Ongoing
- Synthesis of AlH₃ as solid propellant –DRDO-Ongoing
- Development of ECMR for Hydrogen generation- 2016- Ongoing
- Technical research centre 2016-ongoing , CoPI

8. Achievements

Worked in Technology Demonstration of PEMFC for stationary applications funded by DST,
 Involved in the development of 1 kW GIPS system (2006),
 Involved in the development of 3 kW GIPS system (2007)
 Involved in the development of 5 kW GIPS system (2009)
 Involved in the development of 10 kW GIPS system (2010)
 Involved in the development of 20 kW GIPS system (2012)

Worked in Technology Demonstration of PEMFC for Transport applications –
 Demonstrated a 3 kW PEMFC power pack in a Bijlee vehicle (Mahindra) – 2009
 Demonstrated a 5 kW PEMFC power pack in a Bijlee vehicle (Mahindra) – 2012

Working in Many R & D projects

Development of fuel cell electrodes

Development of catalysts

Development of supercapacitors

Development of metal air batteries, Li batteries

Modelling studies for flow distribution, Power conditioners, emulators, system optimization(Hydrogen recirculation, Online humidification,CHPetc),statistical analysis

9. Patents - 22 Annexure 1

10. Publications: 120 Annexure 2

11. Peer Recognition

- Reviewer for many DST, MNRE projects
- Referee for
 - Journal of Physical Chemistry,
 - ACS
 - International Journal of Hydrogen Energy ,
 - Journal of New materials for Electrochemical systems ,
 - Journal of power sources,
 - Carbon,
 - Book “ Fundamentals of Electrochemical Deposition” by John Wiley publishers, J ECS series
- Scientific committee member for second ASME International conference on Fuelcell science, Engineering and Technology, 2003, Rochester, NewYork
- Member of the Advisory Panel in
 - Nanotechnology and Nanobiotechnologyworkshop ,
 - Member of the Advisory Panel in “ Current Trends in Nanotechnology” conference
 - Panel Member in International conference in Renewable energy , Anna University 2010,

- Panel member in Science city during Science day celebrations, 2011, Hydrogen energy
- Chaired a session in
 - ASME conference at Ypsilanti USA during 2005
 - SAE 2010, Alternative fuels, Chennai
 - NIT Suralkal, 2010, Recent trends in Chemical and Analytical methods,
 - Delhi University, Nov 2012, during Indo-German workshop,
 - IIT Madras Sep 2012, during ANM 2012
- Given 45 invited talks in various National and International conferences
- Gave series of lectures on Fuel cells at
 - IIT Madras, India (2006)
 - Kaust, Saudi Arabia (2010) for Undergraduate students
 - KRICT, South Korea, 2003
 - IIT Madras , vel Tech, science city, VIT (2012)
- Presented 20 papers in National Conferences
- Attended the prestigious GRC conference on Fuel cells by Invitation (2007, 2009 and 2010) and participated in the rapid discussion section, Rhode Island, USA
- Presented the inaugural lecture as Chief Guest in two National conferences 2008, 2010

12. Membership of Professional Bodies

Member of Materials Research Society of India

Member of The International society for Fuel cell Technology

American Chemical society, USA

Electrochemical society, USA

13. Number of M.Tech/Ph.D students guided :

50 (1, completed , 5 Ph.D on going)

Annexure 1 Patents

1. A porous electrode for use in Electrochemical cells Application No. 286/MAS/2001
2. A method of rendering porous graphite plates impervious to fluids, Application No. 326/MAS/2001
3. A device for surface polishing of graphite plates, Application No. 396/MAS/2001
4. Flow field design for fuel cells Application No. 554/MAS/2001
5. An improved process for the preparation of exfoliated graphite separator plates useful in fuel cells, the plates prepared by the process and a fuel cell incorporating the said plates

GRANTED

Patent No.281504 (1206/DEL/2006), Dated 17/05/2006, granted on dated 20/03/2017

6. An improved test control system useful for fuel cell stack monitoring and controlling, Appl.No.1989/DEL/2006, Complete specification filed on 12th Jan 2007
7. An improved process for preparing nano tungsten carbide powder useful for fuel cells, - Appl.No. 81/DEL/2007
8. An improved fuel cell having enhanced performance .Appl.No. 606/DEL/2007,

9. Electrochromic material based on Misch metal substituted alloy hydrides

Appl No. No:668/CHE/2007 (with IIT-M)

10. Improved electrode membrane assembly and a method of making the assembly

ApplNo. 631/del/2008

GRANTED 290765, Application No. : 631/DEL/2008, Date of Filing : 13/03/2008,

18.12.2017

11. An Improved catalyst ink useful for preparing gas diffusion electrode and an improved PEM fuel cell , application No. 680/DEL/2008 filed on 18.3.2008

GRANTED REF:- Patent No.277778 (680/DEU2008), Dated 18/03/2008 Granted On Dated 30.12.2016

12. An improved gas flow field plate for use in polymer electrolyte membrane fuel cells (PEMFC)" , Patent Application No. : 2339/DEL/2008, dated 13/10/2008.

13. AN IMPROVED GAS AND COOLANT FLOW FIELD PLATE FOR USE IN POLYMER ELECTROLYTE MEMBRANE FUEL CELLS (PEMFC).2010

14. A DEVICE FOR, AND A METHOD OF, COOLING FUEL CELLS

15. Electronically and ionically conducting multi layer fuel cell electrode and a method for making the same

16. Enhanced Thermal management system for Fuel Cell applications using Nanofluid Coolant

17. Fuel cell system equipped with oxygen enrichment system using magnet

18. A polymer electrolyte membrane (PEM) cell and a method of producing hydrogen from aqueous organic solutions in pulse current mode. No 3313/del/2012 dated 29thoct 2012

19. A method of preparation of platinum nano particle catalyst supported on carbon in tubular flow reactor via polyol process (With Patent Lawyer)

20. High temperature polymer electrolyte membrane fuel cells with exfoliated graphite based bipolar plate 494/DEL/2014 dt 20.2.14
21. A polymer Electrolyte Membrane (PEM) cell and a method of producing hydrogen from aqueous organic solutions in pulse current mode, Indian patent No. 3313/DEL/2012
22. Exfoliated graphite separator based electrolyser for hydrogen generation, Indian patent No. 3073/DEL/2013

Annexure 2 - Publications

1. Mechanistic modeling of electrochemical charge transfer in HT-PEM fuel cells, Anusree Unnikrishnan , N. Rajalakshmi , Vinod M. Janardhanan, *Electrochimica Acta* 261 (2018) 436-444
2. Nitrogen doped mesoporous carbon supported Pt electrocatalyst for oxygen reduction reaction in proton exchange membrane fuel cells, J.A. Prithi, N. Rajalakshmi, G. Ranga Rao, *International Journal of Hydrogen Energy*, In press, corrected proof, Available online 19 December 2017
3. Influence of ethyl acetate as a contaminant in methanol on performance of Electrochemical Methanol reformer for hydrogen production, Narreddula Manjula, R. Balaji, K. Ramya, K.S. Dhathathreyan, N. Rajalakshmi and A. Ramachandraiah, *International Journal of Hydrogen Energy*, Volume 43, 2018, Pages 562-568
4. Mesoporous Platinum as sulfur-tolerant catalyst for PEMFC cathodes, J. A. Prithi & N. Rajalakshmi & K. S. Dhathathreyan, *J Solid State Electrochem* DOI 10.1007/s10008-017-3686-0, 2017
5. Studies on PEMFC Stack for SO₂ Contamination at Air Cathode, J. A. Prithi¹, B. Sasank Viswanath, N. Rajalakshmi, K. S. Dhathathreyan, DOI: 10.1002/fuce.201600118, *Fuel cells*, 2017
6. Synthesis and characterization of activated carbon from jute fibres for hydrogen storage, T. Ramesh, N. Rajalakshmi and K.S. Dhathathreyan, *Renewable energy and environmental sustainability*, 2017, In press
7. Fuel cell Technology – Clean energy, *Electrical journal* July 2016, N. Rajalakshmi
8. Activated carbons derived from tamarind seeds for hydrogen storage, T. Ramesh, N. Rajalakshmi, K.S. Dhathathreyan, *J Energy Storage*, 4 (2015) 89–95
9. Porous Carbon Nanomaterial from Corncob as Hydrogen Storage Material, N. Rajalakshmi, B. Yamini Sarada, and K. S. Dhathathreyan, *Adv Porous Materials*, 2 (2014) 1-6
10. Recovery of Polymer Electrolyte Fuel Cell exposed to sulfur dioxide, Biraj Kumar Kakati, Anusree Unnikrishnan, Natarajan Rajalakshmi, RI Jafri, KS Dhathathreyan, Anthony RJ Kucernak, *IJHE* (2016) 1–7
11. Nitrogen Doped Graphene as Catalyst Support for Sulfur Tolerance in Polymer Electrolyte Membrane Fuel Cells, Prithi Jayaraj, R. Imran Jafri, N. Rajalakshmi*, and K. S. Dhathathreyan, *GRAPHENE*, 2, 1–5, 2014
12. Effect of binders on the graphene based anode in Li-ion rechargeable battery, Sanju Rani¹, N. Rajalakshmi¹, R. Vedarajan, Noriyoshi Matsumi and K S Dhathathreyan, *Graphene* (In Press)
13. Performance analysis of polymer electrolyte membrane (PEM) fuel cell stack operated under marine environmental conditions, B. Viswanath Sasank, N. Rajalakshmi, K. S. Dhathathreyan, *J Mar Sci Technol*, DOI 10.1007/s00773-016-0369
14. A novel reconfigurable hybrid system for fuel cell system, K. Latha, B. Umamaheswari, K. Chaitanya, N. Rajalakshmi, K.S. Dhathathreyan, *IJHE* 40 (2015) 14963-14977

15. Review-Mechanisms and effects of mechanical compression and dimensional change in polymer electrolyte fuel cells, Jason Millichamp , Thomas J. Mason , Tobias P. Neville , Natarajan Rajalakshmi, Rhodri Jervis , Paul R. Shearing , Daniel J.L. Brett, *Journal of Power Sources* 284 (2015) 305-320
16. Nitrogen doped graphene prepared by hydrothermal and thermal solid state methods as catalyst supports for fuel cell, R. Imran Jafri , N. Rajalakshmi , K.S. Dhathathreyan , S. Ramaprabhu, *IJHE* 40 (2015) 4337-4348
17. Pt Decorated Free-Standing TiO₂ Nanotube Arrays: Highly Active and Durable Electrocatalyst for Oxygen Reduction and Methanol Oxidation Reactions, Moidhily Manikandan, Raman Vedarajan, Rajesh Kodiyath, Hideki Abe, Shigenori Ueda, Arivuoli Dakshnamoorthy, Natarajan Rajalakshmi, Kaveripatnam S. Dhathathreyan, and Gubbala V. Ramesh, *J Nanoscience and Nanotechnology*, 15, 1–10, 2015
18. K. Latha, Umamaheswari B, Chaitanya K, M, Rajalakshmi N, Dhathathreyan K.S, A Novel Reconfigurable Hybrid System for Fuel Cell System, *IJHE* (2015)
19. R. Imran Jafri, N. Rajalakshmi , K.S. Dhathathreyan , and S. Ramaprabhu “ Nitrogen doped graphene prepared by hydrothermal and thermal solid state methods as catalyst supports for fuel cell “ , *International Journal of Hydrogen Energy* 40 (2015) 4337-4348
20. Sanju Rani and N. Rajalakshmi , “Effect of Nanotube Diameter on Photo-Electro-Chemical Properties of Carbon Quantum Dot Functionalized TiO₂ Nanotubes “ , *Journal of Clean Energy Technologies*, Vol. 3, No. 5, 367-371, September 2015
21. Prithi Jayaraj, P. Karthika, N. Rajalakshmi, K.S. Dhathathreyan , “Mitigation studies of sulfur contaminated electrodes for PEMFC” , *International Journal of Hydrogen Energy* 39 (2014) 12045 – 12051
22. V. Senthilvelan, G. Velayutham, N. Rajalakshmi, K.S. Dhathathreyan, “Influence of compressive stress on the pore structure of carbon cloth based gas diffusion layer investigated by capillary flow porometry “ , *International journal of Hydrogen Energy* 39 (2014) 1752- 1759
23. Alkali intercalated graphene oxide for high performance supercapacitors, P. Karthika, N. Rajalakshmi and K.S. Dhathathreyan, *Graphene*, 2013 (In press)
24. A Novel Graphene Based Cathode for Metal-Air Battery, Senthilvelan V, Karthika P, Rajalakshmi N, Dhathathreyan K.S, *GRAPHENE*, Vol. 1, 1–7, 2013
25. Synthesis and electro-catalytic properties of Platinum supported on graphene towards methanol oxidation- Insight on functionalities and thermal stability of graphene support., P. Karthika, N. Rajalakshmi, K.S. Dhathathreyan, and D. Arivuoli, *Journal of Nanoscience and Nanotechnology* (2014)
26. Analysis of Liquid Water Formation, Distribution and Transport in a PEM Fuel Cell, P.K. Jithesh, R. Arvindvivek, N. Rajalakshmi, K.S. Dhathathreyan, T. Sundararajan, Sarit K. Das, *Journal of Power sources* (2014)
27. Carbon assisted water electrolysis for hydrogen generation, S. Sabareeswaran, R. Balaji, K. Ramya, N. Rajalakshmi and K.S. Dhathathreyan *AIP Conf Proceedings*, 43, 2013, 1538
28. Investigation Of Various Operating Modes Of Fuelcell/Ultracapacitor/Multiple converter based Hybrid System, K. Latha , B. Umamaheswari , N. Rajalakshmi , K.S. Dhathathreyan, *PID*
29. Synthesis of mesoporous Pt-Ru alloy particles with uniform sizes by sophisticated hard templating method, *Chem Asian Journal* , 2013 (In press)
30. Hard templating synthesis of mesoporous Pt based alloy particles with low Ni and Co contents , *Chemistry Letters*, 42, Issue No. 4, 2013 (In press)
31. Flexible Polyester Cellulose Paper Supercapacitor with a Gel Electrolyte, Prasanna Karthika, Natarajan Rajalakshmi, and Kaveripatnam S. Dhathathreyan, *Chem Phys Chem* 2013, 14,

32. Efficient Power Conditioner for a Fuel Cell Stack-Ripple Current Reduction Using Multiphase Converter, Sampath Naveen Kumar, NatarajanRajalakshmi*, KaveripatnamSamban Dhathathreyan, Smart Grid and Renewable Energy, 2013, 4, 53-56
33. Tuning of PEM fuel cell model parameters for prediction of steady state and dynamic performance under various operating conditions, K. Lathaa,S. Vidhya , B. Umamaheswari , N. Rajalakshmi , K.S. Dhathathreyan, Int Journal of hydrogen energy , 2012, 1-7
34. Design and Optimization of a Closed Two Loop Thermal Management Configuration for PEM Fuel Cell Using Heat Transfer Modules, ViswanathSasankBethapudi, Rajalakshmi N., and Dhathathreyan K. S.International Journal of Chemical Engineering and Applications, Vol. 3, No. 4, August 2012
35. Electrochemical Impedance spectroscopy as a diagnostic tool for the evaluation of flow field geometry in polymer electrolyte membrane fuelcells, M.Maidhily,N.Rajalakshmi and K.S.Dhathathreyan, Renewable energy 51,2013,79-84
36. Phosphorus doped ExfoliatedGraphene for Supercapacitor Electrodes, P.Karthika, N.Rajalakshmi and K.S.Dhathathreyan, J Nanoscience and Nanotechnology (2012)
37. Functionalized Exfoliated graphene oxide as supercapacitor electrodes , P.Karthika, N.Rajalakshmi and K.S.Dhathathreyan, Soft nanoscience letters , 2, 2012 , 59-66
38. Forced air breathing PEMFC stacks, K.S.Dhathathreyan, N.Rajalakshmi*, K.Jayakumar, S.Pandian, Accepted for publication in International Journal of Electrochemistry (2012)
39. Efficient Power conditioner for a fuel cell stack- Ripple Current Reduction Using Multiphase Converter,S.Naveen Kumar, N.Rajalakshmi and K.S.Dhathathreyan, Smart Grid and Renewable Energy, 4, 2013,53-56
40. Novel Platinum–Cobalt Alloy Nanoparticles Dispersed on Nitrogen-Doped Graphene as a Cathode Electrocatalyst for PEMFC Applications, B. P. Vinayan, Rupali Nagar, N. Rajalakshmi, S. Ramaprabhu,Adv. Functional Materials, 2012
41. Design and analysis of a proton exchange membrane fuel cells (PEMFC), S. Pandiyan , A. Elayaperumal , N. Rajalakshmi , K.S. Dhathathreyan , N. Venkateshwaran, Renewable Energy 49, (2013) 161- 165
42. Wrinkled Graphenes: A Study on the Effects of Synthesis Parameters on Exfoliation – reduction of Graphite Oxide, AdarshKaniyoor, TessaTheres Baby, ThevasahayamArockiadoss, NatarajanRajalakshmi, and Sundara Ramaprabhu, The Journal of Physical Chemistry C | 3b2 | ver.9 | 15/8/011
43. Functionalised 2D Graphene Sheets as Catalyst Support for Proton Exchange Membrane Fuel Cell Electrodes, P. Karthika, N. Rajalakshmi, R. Imran Jaffri, S. Ramaprabhu, and K. S. Dhathathreyan, Adv. Sci. Lett, 4, 2012, 1-6.
44. Synthesis of graphene-multiwalled carbon nanotubes hybrid nanostructure by strengthened electrostatic interaction and its lithium ion battery application , J Mater.chem. 2012, In press, B P. Vinayan, Rupali Nagar, V. Raman, N. Rajalakshmi, K. S. Dhathathreyan and S. Ramaprabhu
45. Electrochemical impedance diagnosis of micro porous layer in polymer electrolyte membrane fuel cell electrodes, Int J ournal of Hydrogen Energy 36, 2011, 12352, M. Maidhily, N. Rajalakshmi, K.S. Dhathathreyan
46. Graphene-multi walledcarbon nanotube hybridelectrocatalystsupportmaterialfordirectmethanolfuelcell , NeetuJha, R. Imran Jafri , N. Rajalakshmi , S. Ramaprabhu, Internnernational journal of hydrogen energy , 36(2011)27284
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48. Nitrogen doped graphene nanosheets as catalyst support for oxygen reduction reaction in proton exchange membrane fuel cell, R. Imran Jafri, N. Rajalakshmi and S. Ramaprabhu, *J. Mater. Chem.*, 2010, xx, 1–5
49. Solar exfoliated graphene–carbon nanotube hybrid nano composites as efficient catalyst supports for proton exchange membrane fuel cells, S. S. Jyothirmayee Aravind, R. Imran Jafri, N. Rajalakshmi and S. Ramaprabhu, *J. Mater. Chem.*, 2011, 21, 18199
50. Au–MnO₂/MWNT and Au–ZnO/MWNT as oxygen reduction reaction electrocatalyst for polymer electrolyte membrane fuel cell Original Research Article International Journal of Hydrogen Energy, Volume 34, Issue 15, August 2009, Pages 6371-6376, Razack Imran Jafri, N. Sujatha, N. Rajalakshmi, S. Ramaprabhu
51. Response to the comments by Rezaei et al., on: “Electricity generation by *Enterobacter cloacae* SU-1 in mediator less microbial fuel cell” by Samrot et al. International Journal of Hydrogen Energy, Volume 35, Issue 19, October 2010, Pages 10636-10637, N. Rajalakshmi
52. Nitrogen-doped multi-walled carbon nanocoils as catalyst support for oxygen reduction reaction in proton exchange membrane fuel cell, *Journal of Power Sources*, Volume 195, Issue 24, 15 December 2010, Pages 8080-8083, R. Imran Jafri, N. Rajalakshmi, S. Ramaprabhu
53. Nanostructured Pt dispersed Graphene-Multi walled Carbon Nanotube hybrid nanomaterials as electrocatalyst for Proton Exchange Membrane Fuel cells, *The Journal of Electrochemical Society* (2010) R. Imran Jafri, T. Arockiadoss, N. Rajalakshmi and S. Ramaprabhu,
54. Performance of PEMFC using Pt/MWNT-Pt/C composites as electrocatalysts for oxygen reduction reaction in PEMFC, *J. Fuel Cell Science and Technology*, 7(2010) 1-7, A. Leela Mohana Reddy, M. M. Shaijumon, N. Rajalakshmi and S. Ramaprabhu
55. Au– MnO₂/MWNT and Au–ZnO/MWNT as oxygen reduction reaction electrocatalyst or polymer electrolyte membrane fuel cell, *International Journal of Hydrogen Energy* (2009) 34, 6371-6376, R. Imran Jafri, N. Sujatha, N. Rajalakshmi and S. Ramaprabhu
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58. Assessment of factors responsible for polymer electrolyte membrane fuel cell electrode performance by statistical analysis, *Journal of Power Sources* 2008 G. Velayutham, K.S. Dhathathreyan, N. Rajalakshmi, D. Sampangi Raman,
59. Statistical Analysis of a PEMFC stack – 2.5 kW system operating condition, *J. fuel cell science and Technology* (2008) N. Rajalakshmi, G. Velayutham and K.S. Dhathathreyan
60. Pulsed electrodeposition of catalyst layer of PEMFC electrodes, *Int. Journal of Hydrogen Energy* 33, (2008) 5672-5677 N. Rajalakshmi and K.S. Dhathathreyan
58. Pt-Ru Multiwalled carbon nanotubes as electrocatalysts for direct methanol fuel cells, *International Journal of Hydrogen Energy* 33 (2008) 427-433 Neetu Jha, A. Leela Mohana Reddy, M.M. Shaijumon, N. Rajalakshmi and S. Ramaprabhu
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60. N. Rajalakshmi, S. Pandian, K.S. Dhathathreyan, Design and development of modular fuel cell stacks for various applications, *Int. Journal of Hydrogen Energy* 33 (2008) 449-454
61. ALM Reddy, N. Rajalakshmi, Sundara Ramaprabhu Cobalt-polypyrrole-multiwalled carbon

- nanotube catalysts for hydrogen and alcohol fuel cells, Carbon, Volume 46, Issue 1, January 2008, Pages 2-11
62. M. Krishna Kumar, N. Rajalakshmi, and S. Ramaprabhu, Electrochromism in mischmetal based AB₂ alloy hydride thin film, J PhysChem111, 24, (2007) 8532-37
 63. G Velayutham, J Koushik, N. Rajalakshmi and K S Dhathathreyan Effect of PTFE Content in Gas Diffusion Media and Microlayer on the Performance of PEMFC Tested under Ambient Pressure, Fuel cells Issue No1, (2007) 1-5
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 73. K. Ramya, N. Rajalakshmi, P. Sridhar and B. Sivasankar, Electrochemical characteristics of titanium based hydrogen storage Alloys, J alloys and compounds 373 (2004) 252
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Annexure -3- students

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6. Ph.D , Metallurgy, Ms.Harini, IIT Madras, 2018 - On going
7. M.Tech Mr.Ragul Krishna, Pondicherry Univ, 2015
8. M.Sc, Physics, Mr.Guru prasanna,2016
9. B.Tech, Chem Engg, Mr.Pranav Ramesh, 2015
10. B.Tech, chem., Mr.Ashwin Nambi, 2016
11. M.Sc, Physics, Ms.S.Abinaya, Madras University, 2016
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13. B.Tech, IIT Gauhati, summer intern project 2013, Mr.Arvindsekar
14. B.Tech SRM University, Summer intern project 2013, Mr.Misra
15. B.Tech ,IIT Madras Summer intern 2012, Mr. Vimal
16. BITS pilani, Final year project ,SaratChandran . Gautam, 2011
17. SSN college, Chennai B.Tech(2011) 2 students
18. Sai Ram college , Chennai , B.Tech , (2011) 2 students
19. M.Sc ,Biotechnolgy, Satyabhama University, Microbial Fuel cells, 2010 G.C. Akilandeswari
20. M.Sc Biotechnology, Satyabhama University, Cellulose based microbial fuel cells, 2010, K.Pavan Kumar
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22. M.Tech , Biotechnolgy, satyabhama University, H2 production from Algae, 2009

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