Name

Dr.K. Ramya

Designation

Senior Scientist

Qualification

Ph.D.

Research areas of interest

Hydrogen technologies, PEMFC, DMFC, Polymer electrolyte membranes, Hydrogen generation, Regenerative fuel cell etc.

Publications

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1. Compact and flexible hydrocarbon polymer sensor for sensing humidity in confined spaces, L.S.Ranjani, K. Ramya, K. S. Dhathathreyan, International Journal of Hydrogen Energy, 39, 21343-21350, 2014.
2. S.Seetharaman, Raghu, S, Velan, M, Ramya, K & Ansari, K 2014, 'Comparison of the performance of reduced graphene oxide and multiwalled carbon nanotubes based Sulfonated polysulfone membranes for electrolysis application', Polymer Composites, DOI 10.1002/pc.22962.
3. S.Seetharaman& R. Balaji& K. Ramya& K. S. Dhathathreyan & M. Velan, "Electrochemical behaviour of nickel-based electrodes for oxygen evolution reaction in alkaline water electrolysis", Ionics, 20 (5),pp 713-720, 2014
4. Bifunctional electrocatalyst for oxygen/air electrodes, N. Sasikala, K. Ramya, K.S. Dhathathreyan, Energy conversion and Management, 77, 2014, 545-549.
5. Graphene oxide modified non noble metal electrode for alkaline anion exchange membrane water electrolyzers, S.Seetharaman, R.Balaji,

K.Ramya, K.S.Dhathathreyan, M.Velan. International Journal of Hydrogen Energy 2013, 38, 14934-14942.

6. PEMFC membrane electrode assembly degradation study based on its mechanical properties, Ranjani Lalitha Sridhar, Ramya Krishnan, International Journal of Materials Research, Volume 104(9), 2013,892-898.
7. Hydrogen production by alcoholysis of sodium borohydride, K.Ramya, K.S.Dhathathreyan, J.Sreenivas, S.Kumar[b], S.Narasimhan, Accepted for publication in International Journal of Energy Research, 37(14),2013, 1889-1895. DOI: 10.1002/er.3006
8. Electrochemically reduced Graphene oxide / Sulfonated polyether ether ketone composite membrane for electrochemical applications
   S.Seetharaman*, K.Ramya, K.S.Dhathathreyan, AIP conference Proceedings 1538, 257 (2013).
8. Carbon Assisted water electrolysis for hydrogen generation, S.Sabareeswaran, R.Balaji, K.Ramya and K.S.Dhathathreyan, AIP conference Proceedings 1538, 43(2013).
9. Performance of a 1 kW Class Nafion-PTFE Composite Membrane Fuel Cell Stack, Pattabiraman Krishnamurthy, Ramya Krishnan, and Dhathathreyan Kaveripatnam Samban, International Journal of Chemical Engineering
   Volume 2012 (2012), Article ID 512803, 7 pages doi:10.1155/2012/512803
10. Phosphotungstic Acid Modified Expanded PTFE based Nafion Composites, K.Pattabiraman and K.Ramya, J of new materials for electrochem. Sys., 14(4), 217-222, 2011.
11. Study of a porous membrane humidification method in polymer electrolyte fuel cells, K. Ramya*, J. Sreenivas, K.S. Dhathathreyan, International Journal of Hydrogen Energy, vol 36(22), p14866-14872,2011.
12. Performance of EDLCs using nafion and nafion composites as electrolyte' - C. K. Subramaniam*, C. S. Ramya and K. Ramya , J of Applied Electrochemistry, Volume 41, Number 2, 197-206, 2011

13. Methanol crossover studies in heat treated Nafion membranes, K.Ramya and K.S.Dhathathreyan, J.Memb. Sci. 311 (2008) 121-127.
14. Effects of solvents on the characteristics of Nafion/ PTFE composite membranes for fuel cell applications, K.Ramya, G.Velayutham, C.K.Subramaniam, N.Rajalakshmi, K.S.Dhathathreyan, J. Power Sources 160 (2006) 10-17
15. Characterization and Optimization of Low cost activated carbon Fabric as a substrate layer for PEMFC electrodes, N.Rajalakshmi, G.Velayutham, K.Ramya, C.K.Subramaniam and K.S.Dhathathreyan in Proceedings of Fuel Cell 2005, Third International Conference on Fuel Cell Science, Engineering and Technology, May 23-25, Ypsilanti, Michigan (FuelCELL-74182)
16. Electrochemical characteristics of titanium based hydrogen storage alloys, K.Ramya, N. Rajalakshmi, P.Sridhar and B.Sivasankar, J alloys and Compounds, 373, 1-2, (2004) 252-259.
17. Direct Methanol Fuel Cells: Determination of Fuel Crossover in a polymer electrolyte membrane, K.Ramya and K.S.Dhathathreyan, J Electroanalytical Chemistry, 542 (2003) 109-115
18. Poly(Phenylene oxide) based polymer electrolyte membranes for fuel cell applications, K.Ramya and K.S.Dhathathreyan, J applied polymer Science, 88 (2) (2003) 307-311.
19. Electrochemical studied on the effect of nickel substitution in TiMn2 alloys, K.Ramya, N.Rajalakshmi, P.Sridhar and B.Sivasankar, J.Alloys and Compounds, 352 (2003), 315-324.
20. Synthesis and Characterization of sulphonated poly(Phenylene oxides) as membranes for polymer electrolyte fuel cells, B.Vishnupriya, K.Ramya and K.S.Dhathathreyan, J applied Polymer Science, 83(8) (2002), 192-1798.
21. Effect of surface treatment on electrochemical properties of TiMn1.6Ni0.4 alloy in alkaline electrolyte, K.Ramya, N.Rajalakshmi, P.Sridhar and B.Sivasankar, J Power Sources, 111 (2002) 335-344.

22. Methanol permeability studies on sulphonated polyphenylene oxide membrane for direct methanol fuel cell, K.Ramya, B.Vishnupriya and K.S.Dhathathreyan, J New Materials for Electrochemical Systems, 4(2) (2001) 115-120.
23. Polymer composites for polymer electrolyte membrane (PEM) fuel cells and Direct methanol fuel cells (DMFC), B.Vishnupriya, S.Jayaprakash, K.Ramya, M.Raja and K.S.Dhathathreyan, Proceedings of the First Asian Conference on Solid State Ionic Devices – FACSSID2000, March 22-24, 2000 held at Chennai India
24. High Performance gas diffusion electrodes for PEMFC, C.K.Subramaniam, N.Rajalakshmi, K.Ramya and K.S.Dhathathreyan, Bulletin of Electrochemistry, 16(8) 2000, 350-353
25. Development of polymer electrolyte membrane fuel cell stack, K.S.Dhathathreyan, P.Sridhar, G.Sasikumar, G.Velayutham, C.K.Subramaniam, N.Rajalakshmi, M.Raja and K.Ramya, International Journal of Hydrogen Energy, 24 (1999) 1107-1115.
26. Standard Potential of hydrogen electrode, S.Parthasarathy, K.Ramya and V.K.Venkatesan, Current Science, 69(10) (1995) 871-874.
27. Single –ion activities by a solid ion transmitter bridge and a reference electrode without liquid junction, S.Parthasarathy and K.Ramya, Current Science, 69(6) (1995) 529-533.

Papers in Conference

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28. Methanol-Water Electrolysis using Titania Nanotubes based composite membtrane for hydrogen generation, N.Manjula, R.Balaji, K.Ramya, K S. Dhathathreyan,A Ramachandraiah, The National Conference on Advanced Functional Materials, 8^{th} and 9^{th} of May 2015 at SRM University Vadapalani,Chennai.

29. Recovery of waste heat in a HT-PEMFC, G Vijaydev, K Ramya, Select X5 meet Organised by CECRI, Karaikudi, Feb26-27, 2015. Third prize to MR.Vijay Dev for best paper presentation
30. Modelling studies in Alkaline Fuel Cells, Shilochana Dudi and K. Ramya, Poster presentation at Comsol Conference 2014 held at Park Plaza Hotel, 13-14 Nov 2014
31. Development of Anion Exchange Membrane based Supercapacitors, P V S Krishna, K Ramya, K.S.Dhathathreyan, IUMRS-ICA 2013, Dec 16-20, Indian Institute of Science, Bangalore, India.
32. Hydrogen generation via urea electrolysis using Nickel alloy electrode, L.S. Ranjani, R. Balaji, K.Ramya, K.S.Dhathathreyan, National symposium on electrochemical science and technology, Bengaluru, India Aug 23-24, 2013
33. PEMFC technology development at ARC-International
    K.Ramya, N.Rajalakshmi, K.S.Dhathathreyan, Indo – US Interactive on hybrid power systems and energy meet held at NMRL Ambernath, on October 18^{th} – 19^{th} 2012
34. Electrochemically reduced grapheme oxide/sulphonated polyether ether ketone composite membrane for electrochemical applications, S.Seetharaman, K.Ramya, K.S.Dhathathreyan, Abstract no. OP50, National conference on carbon Materials 2012(CCM 12), 1-3 Nov, 2012, BARC, Mumbai
35. Carbon Assisted water electrolysis for hydrogen generation, S.Sabareeswaran, R.Balaji, K.Ramya and K.S.Dhathathreyan,Abs. No. OP33, National conference on carbon Materials 2012(CCM 12), 1-3 Nov, 2012, BARC, Mumbai.
36. Bifunctional electrocatalysts for Oxygen/air electrodes
    N.Sasikala, K.Ramya
    Paper Presented in Seventeenth National convention of Electrochemists(NCE- 17) at B.S.Abdur Rahman University, Chennai on 14-15^{th} Sep' 2012

37. Synergistic effect of stabilizer in alkaline water electrolysis"
    S.Seetharaman , R.Balaji , K.Ramya , K.S.Dhathathreyan , M.Velan
    Paper Presented in Seventeenth National convention of Electrochemists(NCE- 17) at B.S.Abdur Rahman University, Chennai on 14-15th Sep' 2012
38. Polymer electrolyte membrane Fuel Cells- Technology, K.Ramya ,in National Seminar on Strategies for harnessing fuel cell energy for innovative applications, held at VIT Chennai 8th -9th Feb 2013

39. Silica treated expanded PTFE based Nafion Composite membrane (No. P-17)
    K.Pattabiraman and K.Ramya, International conference on Emerging technologies in Renewable Energy(ICETRE-2010), August 18-21, 2010, Anna University, Chennai, India.
40. Polymer Electrolyte Membrane based Humidity Sensors for Fuel Cells, Ranjani L S & Ramya K, National Symposium on Electrochemical Science and Technology (NSEST 2011) conducted by Electrochemical Society (ECS),Indian Institute of Science Bengaluru, India
41. Study of a Porous membrane humidification method in polymer electrolyte membrane fuel cells(PEMFC), K.Ramya, J. Sreenivas, K.S.Dhathathreyan, in Fucetech 2009, Mumbai, Nov 11-13, 2009
42. Composite ionic material as electrolyte for EDLC development for fuel cell power system application, C.K.Subramaniam, C.S.Ramya, K.Ramya, K.S.Dhathathreyan in Fucetech 2009, Mumbai, Nov 11-13, 2009
43. Study of low cost hydrophilic membrane based humidification for fuel cells, J.Sreenivas, K.Ramya and K.S.Dhathathreyan, a poster presented in the Fourteenth National Convention of Electrochemists held at Indira Gandhi Centre for Atomic Research, Kalpakkam on the 6-7 December 2007 organised by Society of Advancement of Electrochemical Science

and Technology, CECRI Campus, Karaikudi 630005. This poster received the III prize for the best poster award.

44. Water Uptake and Conductivity studies in sulphonated poly(ether ether ketone) membranes, D.Sabhita and K.Ramya, a poster presented in the Fourteenth National Convention of Electrochemists held at Indira Gandhi Centre for Atomic Research, Kalpakkam on the 6-7 December 2007 organised by Society of Advancement of Electrochemical Science and Technology, CECRI Campus, Karaikudi 630005.
45. Characterization and Optimization of Low cost activated carbon Fabric as a substrate layer for PEMFC electrodes, N.Rajalakshmi, G.Velayutham, K.Ramya, C.K.Subramaniam and K.S.Dhathathreyan in Fuel Cell 2005, Third International Conference on Fuel Cell Science, Engineering and Technology, May 23-25, Ypsilanti, Michigan (FuelCELL-74182)
46. Issues pertaining to emerging membrane technology for polymer electrolyte fuel cells, K.Ramya and K.S.Dhathathreyan paper presented at the "National Seminar on Pollution Control- Recent Advances in Membrane Science and Technology- 9^{th} and 10^{th} May 2002 organised by Department of Chemical Engineering, AC College of Technology, Anna University, Chennai-600 025
47. Polymer electrolyte membranes for polymer electrolyte fuel cells, K.Ramya, P.Amala dass and K.S.Dhathathreyan paper presented as a Poster in the "Fourth national symposium on Chemistry" held at Pune Feb 1-3 2001.
48. Electrochemical properties of as produced and copper encapsulated TiMn2 alloy electrodes in alkaline solution, K.Ramya, N.Rajalakshmi, P.Sridhar and B.Sivasankar, Paper presented at the National Symposium on Electrochemical Science and Technology, NSEST-2001, July 20-21 hels at I.I.Sc, Bangalore, India
49. Composite membranes for polymer electrolyte fuel cells, B.Vishnupriya, K.Ramya and K.S.Dhathathreyan, Paper presented at the National

Symposium on Electrochemical Science and Technology, NSEST-2001, July 20-21 hels at I.I.Sc, Bangalore, India

50. Polymer Composites for polymer electrolyte membranefuel cells and Direct methanol fuel cells, B.Vishnupriya, S.Jayaprakash, K.Ramya, M.Raja and K.S.Dhathathreyan, paper presented at the First Asian Conference on Solid State Ionic Devices – FACSSID2000, March 22-24, 2000 held at Chennai India
51. Modified approach for fabrication of gas diffusion electrodes, C.K.Subramaniam, K.Ramya, N.Rajalakshmi and K.S.Dhathreyan by MRSI, Chennai, India held at IGCAR, Kalpakkam, India, 1998.

Invited Lectures

52. Polymer Electrolyte Membrane Based Electrochemical Conversion of Carbon Dioxide from Aqueous Solutions, P. Suresh, K. Ramya*, K. S. Dhathathreyan, Fourth International Conference on Natural Polymers, Bio-Polymers, Bio-Materials, their Composites, Nanaocomposites, Blends, IPNs, Polyelectrolytes and Gels: Macro to Nano Scales (ICNP – 2015), April 10, 11 & 12, 2015, Kottayam, Kerala, India organised by Mahatma Gandhi University, Kottayam Kerala
53. Polymer electrolytes in electrochemical devices
    K.Ramya and K.S.Dhathathreyan, International conference on Advancements in Polymeric materials, Feb 20-22,2015, Organized by CIPETat IISc, Bangalore.
54. Electrochemistry applications in Fuel cells DST SERB school on "Fundamental electrochemical principles applied to problems in science and engineering" from 10-14 Aug,2014 conducted in the Dept. Chem. Engg. IIT Madras.

55. Polymer electrolyte membrane based supercapacitors

K.Ramya and K.S.Dhathathreyan, International conference on Advancements in Polymeric materials, 2014, Organized by CIPET, Bhuvaneshwar.

56. Polymer electrolyte membranes in sensor applications
    K.Ramya and K.S.Dhathathreyan, International conference on Advancements in Polymeric materials, innovation in materials and product developments, March 1-3,2013, Organized by CIPET, Lucknow
57. Ionic conducting Materials- Solid Polymer electrolytes, K.Ramya at Two day Program on Fuel Cell Education and Training – 4-5 April 2011 organized by TIFAC-CORE in Automotive Infotronics, VIT University, Vellore
58. Nafion / PTFE Composite Membranes for Fuel Cell Applications, K.Ramya and K.S.Dhathathreyan, International conference on Advancements in Polymeric materials, innovation in materials and product developments, March 25-27,2011, Organized by CIPET, Chennai

Patents

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59. High temperature polymer electrolyte membrane fuel cells with exfoliated graphite based bipolar plate 494/DEL/2014 dated 20.2.14
60. Exfoliated graphite separator based electrolyzer for hydrogen generation 3073/DEL/2013.
61. Polymer Electrolyte Membrane (PEM) cell and a method of producing hydrogen from aqueous organic solutions in pulse current mode3313/DEL/2012.
62. An improved method for the generation of hydrogen from a metal hydrogen compound and a device therefor - patent application No. 1106/DEL/2007 filed on 23.05.07

63. A hydrophilic membrane based humidifier useful for fuel cells. Patent application No. 95/DEL/2007 filed on 16.01.2007
64. An Improved hydrophilic membrane useful for humidification of gases in fuel cells and a process for its preparation. Patent application number 1207/DEL/2006 dated 17.05.06
65. A Blend Membrane- Application 303/MAS/2001 published 2005-07-29, filed 2001-04-09
66. A composite membrane for use in electrochemical apparatuses and processes, Application 975/MAS/2002 published 2005-05-20, filed 2002-12-12