

C.K. SUBRAMANIAM	
Current Position:	Professor, School of Advanced Sciences, VIT University, Vellore. TN 632014.
Academics:	B Tech - Modern Physics, Material Science, Semiconductor Physics MSc Integrated BioTech – Applied Physics BSc Multimedia & Animation – Phys of Light & Sound M Tech Automotive Electronics – Hybrid Vehicle Technology M Tech Automotive Electronics – Automotive Electrical Systems
Administrative:	<ol style="list-style-type: none"> 1. Practical Exam Coordinator for End Term Arrears and End term Exams Physics SAS 2010. 2. Course Coordinator: Applied Physics PHY 105 2010- 2014 3. Course Coordinator: Phys of Light & Sound PHY 106 2011 4. Convocation Committee 2010-2014 5. MPhil/Phd Entrance in Physics. 2010, 2011, 2014 6. VITMEE Entrance QP. 2011-2013 7. Moderation Committee TEE 2012-2014 8. IQAC 2011 9. VITEEE QP audit: 2013 2014 10. Technical Committee SET Conference 2011-2013 11. Technical Committee SET Conference TIFAC CORE 2011-2013 12. Research Core Committee TIFAC CORE 2013 13. II MSc Electronics Project Coordinator 2013-2014

PERSONAL INFORMATION			
Surname:		Given Names:	
Chittur Krishnaswamy		Subramaniam	
Date Of Birth		31th March 1958	
Nationality		INDIAN	
Mailing Address:			
# 6 I Seaward Road, Valmiki Nagar, Thiruvanmyur, Chennai 600041, INDIA			
Phone: (Home)	(9144) 24561863	Mobile:	94441 40269
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ACADEMIC QUALIFICATIONS			
Institution	From	To	Qualification
Department of Physics and Astrophysics, University of Delhi, India	1983	1989	Phd (Superconductivity)

Department of Physics and Astrophysics, University of Delhi, India	1981	1982	MPhil (Cryogenics/ Solid State Materials)
Department of Physics and Astrophysics, University of Delhi, India	1979	1981	MSc (Solid State Physics)
Vivekananda College, University of Madras, India	1976	1979	BSc (Physics)
Kendriya Vidyalaya, IIT Madras India	1973	1976	Higher Secondary Examination, I Division

EMPLOYMENT

Period:	Feb 2004 to April 2010	Employer:	Centre For Fuel Cell Technology, Advanced Research Centre International (ARCI) IITM Research park, Kanagam Village, Taramani, Chennai 600 113
Position:	SENIOR SCIENTIST		
Key Duties:			
Development of the R & D Centre for Fuel Cell Development at Chennai for ARCI Hyderabad. DST, Govt of India			
Development of PEM Fuel Cell technologies for Automobile applications			
Development of Fuel Cell based electric Vehicle with Reva Electric Car Company Bangalore.			
New and Advanced Materials for Photo Voltaic and Thermoelectric Device applications. Focus on Renewable Energy.			
Development of Supercapacitors for Energy storage applications.			
Development of ARCI's New R&D Center at IITM Research Park Taramani from concept to completion.			

Period:	1995 to 2003	Employer:	SPIC Science Foundation, Center for Energy Research, Chennai, India.
Position:	SENIOR SCIENTIST RESEARCH AND DEVELOPMENT		
Period:	July 1993 to Dec 1994	Employer:	Foundation for Research Science and Technology, Victoria University of Wellington, New Zealand
Position:	RESEARCH SCIENTIST		
Period:	July 1991 to July 1993	Employer:	Victoria University of Wellington, Wellington, New Zealand, PO Box 600.
Position:	POST DOCTORAL FELLOWSHIP RESEARCH WORK /TEACHING		
Period:	May 1987 to June 1991	Employer:	Indian Institute of Technology, Physics Department, Madras 600036, India.
Position:	RESEARCH ASSOCIATE RESEARCH WORK		
Period:	Nov 1985 to March 1987	Employer:	K.M. College, University of Delhi, Delhi 110007, India.
Position:	LECTURER IN PHYSICS TEACHING		

AWARDS/EXPERIENCE:

International Centre for Theoretical Physics (ICTP), Trieste, Italy.	Experimental workshop on high temperature superconductors (1988),	2 months	Workshop on High Temperature Superconductors.
PTB laboratory Braunschweig Germany	Thin Film Deposition for SQUIDs (1990)	1 month	To develop SQUID magnetometer
SPIC Management Development Centre, Kodaikanal, India.	Programme on "Managerial Decision Making"(1996)	1 month	To develop managerial Skills
SSF National Technology Day Award	2002		For developing a prototype membrane based water electrolyser
Australian Government 2015 Endeavour Executive Fellowship	2015	4 months	R&D in Fuel Cells and Hydrogen technologies
Distinguished Visiting Professor	College of Physics and Engineering, Victoria University, Melbourne , Australia 2015	2 months	Development of Fuel Cell Power source
Visiting Fellow	EME, Research School of Physics and Engineering, Australian National University, Canberra Australia	2 Months	R&D on Hydrogen Production

MEMBERSHIP IN PROFESSIONAL BODIES:

Institute of Materials, Minerals and Minings. UK
 Materials Research Society USA
 Electrochemical Society USA
 IEEE USA

SPONSORED PROJECTS COMPLETED AS MEMBER / INVESTIGATOR / CO-ORDINATOR

Year	Organization	Project Title	Work	Duration	Amount sanctioned
1995	MNES Govt of India and SSF	Membrane & Electrode Assembly fabrication for the development of a 25 kWatt Polymer Electrolyte Membrane Fuel Cell system	Team member	5 years	160 lakhs
2000	MNES Govt of India and SSF	Development of PEMFC battery Hybrid Electric Vehicle	Co-ordinator	2 years	15 lakhs
2002	TIFAC DST Govt of India and SSF.	Development of Polymer Electrolyte Membrane Water Electrolyzer	Principal investigator	2 years	30 lakhs
2002	MNES Govt of India and SSF	Development of Fuel Cell Base UPS System	Co-ordinator	3 years	30 lakhs

2002	ISRO Space Application Centre and SSF	Development of Regenerative Fuel Cell	Co-ordinator	5 years	60 lakhs
2004	MNES Govt of India and SSF	Development of Portable Hydrogen Generator using organic fuels such as methanol	Principal investigator	18 months	18 lakhs
2006	ARCI, DST	Development and evaluation of Fuel Cell Battery hybrid vehicle with REVA Electric Car Co., Bangalore	Co-ordinator	36 months	19 lakhs
2009	ARCI, DST	Development of ARCIs New R&D Center at IITM Research Park Taramani	Co-ordinator	24 months	200 lakhs

AREAS OF SPECIALATION/EXPERTISE:

Condensed Matter Physics/Material Science
 Experimental Techniques /UHV Techniques
 Cryogenics
 Superconductivity
 Conducting Polymers
 Polymer Electrolyte Membrane Fuel Cell
 Polymer Electrolyte Membrane Water/ Methanol Electrolyser
 Hybrid Vehicle Technology
 Third Generation Solar Photo Voltaic Materials and Thermo electric Materials
 Thermo electrics and new materials
 Wireless Power Transfer with Metamaterials
 Multilevel Inverters
 Memristor Modelling

PUBLICATIONS:

Have to date **65** publications in referred Indian and Foreign journals.

- Effect of plastic deformation on the thermal conductivity of bismuth-thallium and bismuth-lead specimens between 1.5K and 300K.
C.K.Subramaniam and K.D.Chaudhuri
Cryogenics **26** 628 (1986).
- Effect of plastic deformation on the superconducting transition temperature of tin, bismuth-thallium and bismuth-lead specimens.
K.D.Chaudhuri and **C.K.Subramaniam**
J. Low Temp. Phys. **66** 25 (1987).
- Electrical properties of undeformed and plastically deformed bismuth-thallium and bismuth-lead systems, in the temperature range 1.5 and 300K.
C.K.Subramaniam and K.D.Chaudhuri
J. Mater. Sci. **22** 4199 (1987).
- Single particle tunnelling in $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ and $\text{GdBa}_2\text{Cu}_3\text{O}_{7-x}$.
Prakash Fortunata Rajam, **C.K.Subramaniam**, S.Kasiviswanathan and R.Srinivasan
Review Solid State Science **2** 339 (1988).

5. Grain boundary effects on the resistivity of zinc doped yttrium barium copper oxide superconductors.
H.Krishnan, V.Sankaranarayanan, Vijayashree Radhakrishnan, **C.K.Subramaniam**, R.Srinivasan and G.V.Subba Rao
Phys. Rev. **B40** 2639 (1989).
6. Thermopower of zinc doped yttrium barium copper oxide.
Vijayashree Radhakrishnan, **C.K.Subramaniam**, V.Sankaranarayanan, G.V.Subba Rao and R.Srinivasan
Phys. Rev. **B40** 6850 (1989).
7. Quasi particle tunneling in zinc doped yttrium barium copper oxide.
Prakash Fortunata Rajam, **C.K.Subramaniam**, S.Kasiviswanathan and R.Srinivasan
Solid State Commun. **71** 475 (1989).
8. Resistivity, thermopower and single particle tunneling studies of some zinc doped yttrium barium copper oxide superconductors.
R.Srinivasan, V.Sankaranarayanan, **C.K.Subramaniam**, Prakash Fortunata Rajam, S.Kasiviswanathan, Vijayashree Radhakrishnan, H.Krishnan, U.V.Varadaraju and G.V.Subba Rao
Phase Transitions **19** 87 (1989).
9. Thermopower of 2212 thallium high temperature superconductors.
Vijayashree Radhakrishnan, **C.K.Subramaniam**, R.Srinivasan, I.K.Gopalakrishnan, P.V.P.S.S.Sastry, J.V.Yakhmi and R.M.Iyer
Solid State Commun. **73** 637 (1990).
10. Logarithmic temperature dependence of the resistivity of $\text{Nd}_{2-x}\text{Ce}_x\text{CuO}_{4-y}$.
Vijayashree Radhakrishnan, **C.K.Subramaniam**, V. Sankaranarayanan, G.V.Subba Rao and R.Srinivasan
Physica C **167** 53 (1990).
11. On the magnetic susceptibility of CuO_x .
K.Muraleedharan, **C.K.Subramaniam**, N.Venkataramani, T.K. Gundu Rao, C.M.Srivastava, V.Sankaranarayanan and R.Srinivasan
Solid State Commun **76** 727 (1990).
12. Measurement of higher multipole moments of an inhomogeneous state of a superconductor.
Ravi Kumar, A.K.Grover, P.Chaddah, **C.K.Subramaniam** and V.Sankaranarayanan
Solid State Commun. **76** 175 (1990).
13. A reappraisal of irreversible behaviour in the intermediate state of a type I superconductor.
A.K.Grover, Ravi Kumar, P.Chaddah, **C.K.Subramaniam** and V.Sankaranarayanan
Physica C **170** 431 (1990).
14. Quasi-irreversibility temperature in a type I superconductor and its bearing on data in HTSC crystals.
A.K.Grover, Ravi Kumar, P.Chaddah, V. Sankaranarayanan, and **C.K.Subramaniam**
Phys. Rev. **B43** 6151 (1991).
15. Thermopower of non superconducting and superconducting $\text{Nd}_{1.85}\text{Ce}_{0.15}\text{CuO}_{4-y}$

samples.

Vijayashree Radhakrishnan, **C.K.Subramaniam** and R.Srinivasan
Bull. Mater. Sci. (India) **14** 831 (1991).

16. Magnetic Scattering and superconductivity in $\text{Nd}_{1.86}\text{Ce}_{0.14}\text{CuO}_{4-y}$.

Vijayashree Radhakrishnan, **C.K.Subramaniam** and R.Srinivasan
Bull. Mater. Sci. (India) **14** 741 (1991).

17. Thermoelectric power of single phase samples of $\text{Tl}_2\text{CaBa}_2\text{Cu}_2\text{O}_y$ and $\text{Bi}_2\text{CaSr}_2\text{Cu}_2\text{O}_y$.

Vijayashree Radhakrishnan, **C.K.Subramaniam**, R. Srinivasan, I.K.Gopalakrishnan,
P.V.P.S.S.Sastry, J.V.Yakhmi and R.M.Iyer
Bull. Mater. Sci. (India) **14** 827 (1991).

18. Fluctuation induced excess conductivity in the compounds $\text{CaREBaCu}_3\text{O}_{7-y}$, RE = La and Sm.

H.Krishnan, R.Srinivasan, V.Sankaranarayanan, **C.K.Subramaniam**, and G.V.Subba Rao
Bull. Mater. Sci. (India) **14** 747 (1991).

19. Magnetic Study of the compound $\text{Pr}_x\text{Y}_{1-x}\text{Ba}_2\text{Cu}_3\text{O}_{7-y}$.

L.S.Vaidhyanathan, **C.K.Subramaniam** and G.Rangarajan
Bull. Mater. Sci. (India) **14** 931 (1991).

20. An upper limit on the critical field in single crystal $\text{Nd}_{1.85}\text{Ce}_{0.15}\text{CuO}_{4-y}$.

G.Balakrishnan, **C.K.Subramaniam**, D.McK.Paul, S. Pinol and R.Vijayaraghavan
Physica C **177** 310 (1991).

21. Superconductivity of Bi-2201 (n=1) as influenced by the substitution of Pb and / or rare earths (R = La, Nd and Pr).

P.V.P.S.S.Sastry, J.V.Yakhmi, R.M.Iyer, **C.K.Subramaniam** and R.Srinivasan
Physica C **178** 110 (1991).

22. Anisotropy in the magnetic properties of single crystal $\text{Nd}_{1.85}\text{Ce}_{0.15}\text{CuO}_{4-y}$.

G.Balakrishnan, S.K.Malik, **C.K.Subramaniam**, D.McK.Paul, S.Pinol and R.Vijayaraghavan
J. Magn. Mater. **104-107** 469 (1992).

23. Magnetisation studies in Nb and $\text{YBa}_2\text{Cu}_3\text{O}_7$ samples.

B.V.B.Sarkissian, A.K.Grover, G.Balakrishnan, Ravi Kumar, P.L.Paulose, R.Vijayaraghavan,
V. Sankaranarayanan and **C.K.Subramaniam**
PRAMANA J. Phys. **38** 641 (1992).

24. Superconductivity in (Y,RE)-Ba-Ca-Sr-Cu-O system.

S.Arumugam, S.Natarajan, V.Ganesan, **C.K.Subramaniam** and R. Srinivasan
AIP Conf. Proc. **251** 402 (1992).

25. Thermopower of thallium-based 1212 superconductors with varying hole concentration.

C.K.Subramaniam, A.B.Kaiser A. Mawdsley, H.J.Trodahl and R.G.Buckley
Physica C **203** 98 (1992).

26. Raman spectroscopy of rare earth substituted $\text{YBa}_2\text{Cu}_4\text{O}_8$.

H.J.Trodahl, R.G.Buckley and **C.K.Subramaniam**
Phys. Rev. **B47** (1993) 11354.

27. Electronic properties of Polyaniline/PVC blends.

C.K.Subramaniam, A.B.Kaiser, P.W.Gilberd and B.Wessling
J. Polymer Sci. Part B: Polymer Physics **31** (1993) 1425.

28. Superconductivity in new NdBa₂Ca₃Sr₄Cu₅O_x system.

S.Arumugam, S.Natrajan, V.S.Sastry, T.Geethakumary, T.S.Radhakrishnan,
V.Sankaranarayanan, **C.K.Subramaniam**, V.Ganesan and R.Srinivasan
Phase Transitions **42** (1993) 251.

29. Thermopower and resistivity of La-doped thallium 1201 and bismuth 2201 superconductors.

C.K.Subramaniam, C.V.N.Rao, A.B.Kaiser, H.J.Trodahl, A.Mawdsley, N.E.Flower and J.L.Tallon
Supercond. Sci. Technol. **7** (1993) 30.

30. Thermoelectric power and resistivity of bulk HgBa₂CuO_{4+y} superconductors and the effects of annealing.

C.K.Subramaniam, M. Paranthaman and A.B. Kaiser
Physica C **222** (1994) 47.

31. Crystal structure and anisotropy of iodine-intercalated Bi₂Sr₂Ca_{n-1}Cu_nO_x.

K.Kishio, D.Pooke, H.J.Trodahl, **C.K.Subramaniam**, Y.Kotaka, M.Seto, S.Kitao and Yu. Maeda
J. Superconductivity **7** (1994) 117.

32. Thermopower and Raman studies of Zn-substituted Y-123.

H.J. Trodahl, **C.K.Subramaniam**, C.V. Narasimha Rao, A. Stewart, A.B. Kaiser, R.G. Buckley and J.L. Tallon
Advances in Supercond. VI, Springer-Verlag, Tokyo Inc. (1994) 107.

33. Thermopower of superconducting Ba-K-Bi-O crystals.

C.K.Subramaniam, A.B. Kaiser and Horng-Yi Tang
Physica C **230** (1994) 184.

34. Hopping conductivity in fully oxygenated PrBa₂Cu₃O_y, YBa₂Cu₂CoO_y and PrBa₂Cu₂CoO_y.

B. Fisher, J. Genossar, L. Patlagan, M. Reisner, **C.K. Subramaniam** and A.B. Kaiser
Phys. Rev. **B50** (1994) 4118.

35. Thermoelectric power and resistivity measurements on oxygen-annealed HgBa₂Ca₂Cu₃O₈₊ superconductors.

C.K.Subramaniam, M. Paranthaman and A.B. Kaiser
Phys. Rev. **B51**, (1995) 1330.

36. Thermopower of a untwinned Y123 crystal.

C.K.Subramaniam, H.J. Trodahl A.B. Kaiser and B.J. Ruck
Phys. Rev. **B51** (1995) 3116.

37. Transport properties of fully oxygenated PrBa₂Cu₃O_y, YBa₂Cu₂CoO_y and PrBa₂Cu₂CoO_y - a comparative study.
B. Fisher, J. Genossar, L. Patlagan, G.M. Reisner, **C.K. Subramaniam** and A.B. Kaiser
Physica C **235-240** (1995) 1463.
38. Electronic transport properties of conducting polymers and polymer blends.
A.B. Kaiser, **C.K. Subramaniam** P.W. Gilberd and B. Wessling
Synthetic Metals 69 (1995) 197.
39. Systematic thermopower behaviour in superconductors.
A.B. Kaiser, **C.K. Subramaniam** B. Ruck and M. Paranthaman
Synthetic Metals **71** (1995) 1583.
40. Thermoelectric power and the hole concentration in iodine-intercalated Bi₂Sr₂CaCu₂O_x crystals.
C.K. Subramaniam, H.J. Trodahl, D. Pooke and K. Kishio
Physica C **249** (1995).
41. Conductivity and thermopower of blends of Polyaniline with insulating polymers(PETG and PMMA).
C.K.Subramaniam, A.B.Kaiser P.W. Gilberd, G. -J. Liu and B.Wessling
Solid State Commun. **97** (1996) 235.
42. Superconductivity in amorphous Ta/Ge multilayers.
H.J. Trodahl, H.L. Johnson, **C.K. Subramaniam**, B.J. Ruck, P. Lynam and A.B. Kaiser
Phys. Rev. **B53** (1996) 15226.
43. Electrical conductivity and magneto-resistance studies on polyaniline-PMMA blends at very low temperatures.
D. Srinivasan, Anasuya Raghunathan, T.S. Natarajan, G. Rangarajan, **C.K. Subramaniam** and B. Wessling
Czechoslovak J. of Phys. **46** (1996) 2035.
44. Thermopower of Ba-K-Bi-O and nickel substituted 214 cuprates.
C.-J. Liu, H.Y. Tang, **C.K. Subramaniam** and A.B. Kaiser
Physica C **282-287** (1997) 1271.
45. Magneto-conductivity studies on PANI-PMMA blends near metal insulator transition.
D. Srinivasan, Anasuya Raghunathan, T.S. Natarajan, **C.K. Subramaniam**, B. Wessling and G. Rangarajan
Proceedings of IUPAC International Symposium on Advances in Polymer Science and Technology(Macro '98)
ALLIED PUBLISHERS LTD, Chennai India (1998) p441.
46. Development of polymer electrolyte membrane fuel cell stacks.
K.S. Dhathathreyan, P. Sridhar, G. Sasikumar, K.K. Ghosh, G. Velayutham, N. Rajalakshmi, **C.K. Subramaniam**, M. Raja and K. Ramya
Int. J. of Hydrogen Energy **24** (1999) 1107.
47. High Performance Gas Diffusion Electrodes for PEMFC
C.K. Subramaniam, K. Ramya, N. Rajalakshmi and K. S. Dhathathreyan
Bulletin of Electrochemistry , 16 (2000) 350.

48. Characterisation and optimisation 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
Proceedings of FUEL CELL 2005 Third International Conference on Fuel Cell science, Engineering and Technology, May 2005, 74182.
49. Effect of solvent on the characteristics of Nafion/PTFE composite membranes for fuel cell applications.
K. Ramya, G. Velayutham, **C.K. Subramaniam**, N. Rajalakshmi and K.S. Dhathathreyan
J. Power Sources, **160** (2006) 10.
50. Perflurosulphonic acid based electrochemical double layer capacitor.
C.S Ramya, **C.K. Subramaniam** and K.S. Dhathathreyan,
Journal Electrochem Soc. 157 (5) (2010) A600.
51. Solid State EDLCs using various Ionic polymers: A Study
C K Subramaniam
ECS Transactions **28 (30)** 179 (2010).
52. Performance of EDLCs using Nafion and Nafion composites as electrolyte.
C K Subramaniam, C S Ramya and K. Ramya
J Appl Electrochem **41**,197(2011).
53. Study of carbon based solid state EDLCs at high sweep rates.
C.K. Subramaniam, K. K. Cheralathan, G.Velayutham and Sri Bollepalli
ECS Transactions **41** (2012).
54. Double Layer Energy Storage in Graphene - a Study
C.K. Subramaniam and T. Maiyalagan
Micro and Nanosystems, 4, 180-185, (2012).
55. Storage capacity in Graphene and blends of Graphene EDLC
Subramaniam C.K., Boopalan G., Velayutham G., Bollepalli S.
Technical Proceedings of the 2013 NSTI Nanotechnology Conference and Expo, NSTI-Nanotech 2013
56. A simulation study on the property of micro-arrayed negative refractive index material for the energy transfer.
Boopalan G., **Subramaniam C.K.**
Technical Proceedings of the 2013 NSTI Nanotechnology Conference and Expo, NSTI-Nanotech 2013.
57. DC-DC buck converter with input output isolation for Li-ion Battery Management System.
Karthik H, Sanjay Gupta, **Subramaniam C. K.**, Ganesan K.
Int J of Appl. Engg Research 8 (19) 2543 (2013).
58. Study of Storage Capacity in Various Carbon/Graphene Based Solid State Supercapacitors.
C.K. Subramaniam and G. Boopalan
Appl. Phy A 116 (3), 887. (2014).
59. Frequency dependence of magnetic flux profile in the presence of metamaterials for wireless power transfer.

G. Boopalan and **C.K. Subramaniam**.

IEEE Xplore, 978-1-4799-3432-4, 2437, 2014.

60. Pseudorandom Carrier Based Subharmonic PWM for Cascade Multilevel Inverters.

Ramanathan.T, Ramesh.R, **Subramaniam.C.K** and Ganesan.K.

IEEE Xplore, 978-1-4799-3432-4 , 117, 2014.

61. Memristor Modelling.

B. Muthuswamy, J. Jevtic, H. H. C. Iu, **C. K. Subramaniam**, K. Ganesan, V.

Sankaranarayanan, K. Sethupathi, H. Kim, M. Pd. Shah and L. O. Chua

IEEE Xplore, 978-1-4799-3432-4,490, 2014.

62. Synchronization in coupled Ikeda delay systems; Experimental observations using Field Programmable Gate Arrays

D. Valli1, B. Muthuswamy, S. Banerjee, M.R.K. Ariffin, A.W.A. Wahab,

K. Ganesan, **C.K. Subramaniam** and J. Kurths.

Eur. Phys. J. Special Topics 223, 1465–1479 (2014).

63. Energy Conversion using electrolytic concentration gradients.

Subramaniam Chittur K, Aishwarya Chandran, Ashwini Khandelwal, Sivakumar A,

Materials Research Society Bull., 2015

64. Cobalt Sulfide-Graphene (CoSG) Composite based Electrochemical Double Layer Capacitors.

Ramachandran R, Nirmala Grace A, **Subramaniam Chittur K**.

Materials Research Society Bull., 2015

65. Design and Simulation of methanol sensing devices using DMFC technology.

Subramaniam Chittur K and Muthuraja S.

Materials Research Society Bull., 2015.

66. Cellular Neural/Nonlinear networks for identification of infant retinal defects.

Jason Genz, Michael Rajzer, **Chittur Subramaniam**, Kaliyaperumal Ganesan and

Madhurambika.

IEEE Xplore (2015)

PATENTS

1. “Fuel cell –Battery Hybrid Power Source for Electric Vehicle application”-

Application: 592/MAS/2001, Filing date: 2001-07-19, Publication date: 2006-08-04

C. K. Subramaniam, K.S. Dhathathreyan and G. Sasi kumar

26/2007 29/06/2007 **206298** 23/04/2007 FUEL CELL BATTERY HYBRID POWER

SOURCE FOR ELECTRIC VEHICLE 19/07/2001

2. “A Fuel Cell Based Un-interrupted power supply system”-

Application: 409/MAS/2002, Filing date: 2002-05-28, Publication date: 2005-05-20

G. Velayutham, K.S. Dhathathreyan and **C. K. Subramaniam**.

.30/2009 24/07/2009 **202784** N/A A FUEL CELL BASED UNINTERRUPTED POWER

SUPPLY SYSTEM 28/05/2002

3. “Programmable Battery Management System for portable devices”

Subramaniam C.K., Ganesan K., Ramanathan R., Venkateshwarlu M., Murthy K. S. N. and

Balaji G. Filed 2015.

PAPERS PRESENTED AT CONFERENCES

Have to date **60** presentations in various national and international conferences.

Papers presented at conferences since 1995.

1. Superconductivity in Ta/Ge multilayers.
B.J. Ruck, H.J. Trodahl, **C.K. Subramaniam** and H.L. Johnson
Australia and New Zealand Institute of Physics Condensed Matter Physics Meeting, Wagga Wagga, Australia, Feb. 1995.
2. Electrical field dependence of conductivity in polyaniline-PETG blends.
B. Sanjai, Anasuya Raghunathan, T.S. Natarajan, G. Rangarajan, **C.K. Subramaniam**, A.B. Kaiser and B. Wessling
Solid State Physics Symposium (Department of Atomic Energy), Calcutta, India, Jan 1996.
3. Electrical conductivity and magneto-resistance studies on polyaniline-PMMA blends at very low temperatures.
D. Srinivasan, Anasuya Raghunathan, T.S. Natarajan, G. Rangarajan, **C.K. Subramaniam**, B. Wessling and S.V. Subramanyam
International Conference on Low Temperature Physics (LT21), Prague, 1996.
4. Thermoelectric power of Ba-K-Bi-O and nickel substituted 214 cuprates.
C.-J. Liu, H.Y. Tang, **C.K. Subramaniam** and A.B. Kaiser
International conference on Materials and Mechanism of Superconductivity and High Temperature Superconductors (M²S HTSC -V) Beijing, China (1997).
5. Polymer Electrolyte Membrane Fuel Cell.
S. Parthasarathy, V.K. Venkatesan, K.S. Dhathathreyan, P. Sridhar, G. Sasikumar, K.K. Ghosh, G. Velayathum, N. Rajalakshmi, **C.K. Subramaniam**, M. Raja and K. Ramya
Indo German Seminar on Modern aspects of electrochemistry Bangalore India Sept (1997).
6. DC electrical conductivity and magnetic susceptability studies on polyaniline-PVC blends at low temperatures.
D. Srinivasan, Anasuya Raghunathan, T.S. Natarajan, **C.K. Subramaniam**, B. Wessling and G. Rangarajan
National Seminar on Cryogenics IIT Kharagpur India, Dec (1997).
7. Studies on conducting polymer blends, PANI-PVC and PANI-PMMA.
D. Srinivasan, Anasuya Raghunathan, T.S. Natarajan, G. Rangarajan, **C.K. Subramaniam**, and B. Wessling
Spring meeting of The Materials Research Society, San Fransisco USA March (1997).
8. Magneto-conductivity studies on PANI-PMMA blends near metal insulator transition.
D. Srinivasan, Anasuya Raghunathan, T.S. Natarajan, **C.K. Subramaniam**, B. Wessling and G. Rangarajan
IUPAC International Symposium on Advances in Polymer Science and Technology(Macro '98) CLRI, Chennai India (1998).
9. Catalysts Coated Polymer Membrane for PEMFC.
C.K. Subramaniam, K. Ramya, N. Rajalakshmi and K. S. Dhathathreyan
Symposium on Alternate Energy Materials, MRSI, IGCAR, Kalpakkam, Feb (1998).
10. International Symposium and Exposition on Automotive electronics and Alternate Energy Vehicles, IIT Kanpur, (Nov 1999)
C K Subramaniam

11. Characterisation and optimisation 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
Third International Conference on Fuel Cell science, Engineering and Technology, Ypsilanti Michigan USA, May 2005.
12. Composite Ionic Material as electrolyte for EDLC Development for Fuel Cell Power System Applications.
C.K. Subramaniam, C.S. Ramya and K. Ramya
International Symposium & Exhibition on Fuel Cell Technologies, FUCETECH 2009, Mumbai India, Nov 2009.
13. Solid State EDLS's using various ionic polymers-A study.
C.K. Subramaniam
217 ECS Meeting, April 2010, Vancouver BC Canada.
14. Growth of TiO₂ nanotubes by anodization for photolytic hydrogen production.
C.K. Subramaniam
International Symposium on Nanotechnology INSYN 2010 August 2010, VIT University Vellore TN India.
15. Automotive R&D trends 2015 Sustainable mobility – Technologies, Systems and Best Practices.
CII/TDPC Chennai (2010).
C.K. Subramaniam
16. Study of mesoporous carbon based solid state EDLCs at high sweep rates
C.K. Subramaniam, K. K. Cheralathan, G.Velayutham and Sri Bollepalli
220 ECS Meeting and Energy Summit, Oct 2011, Boston MA USA.
17. Carbon for energy storage in electrochemical double layer capacitor
C.K. Subramaniam, C.S. Ramya, P. Sangeetha, G. Velayutham and Sri Bollepalli
6th Asian Conference on Electrochemical Power Sources, (ACEPS-6), Jan 2012, Chennai India.
18. Graphene for energy storage in electrochemical double layer capacitor
C.K. Subramaniam, T. Maiyalagan, P. Sangeetha, A.M. Prasad, G. Velayutham and Sri Bollepalli
International Conference on Nano Science and Technology (ICONSAT-2012), January 2012, Hyderabad, India.
19. Carbonaceous Material for Double Layer Energy Storage
Sangeetha Palanivelu and **Subramaniam C. K.**
International Conference of Young Researchers on Advanced Materials (ICYRAM 2012), July 2012, Singapore.
20. Nano Nickel as anode catalysts for Direct Boro Hydride (DBFC) and Alkaline (AFC) Fuel Cell
Arjun Ramesh, Shivi Singh, Eshaan Mathew, P. Sangeetha, **C.K. Subramaniam**, K. Ganesan
International Conference of Young Researchers on Advanced Materials (ICYRAM 2012), July 2012, Singapore.
21. Design and Simulation of Sensors to Detect Methanol.
C. K. Subramaniam and Muthuraja

COMSOL Conference India 2012, Nov 2012, Bangalore India.

22. Study of Resonant Coupling using various Magnetic and Negative Refractive Index Materials.

G. Boopalan and **C. K. Subramaniam**

COMSOL Conference India 2012, Nov 2012, Bangalore India.

23. Pure Mobility Connect 2013 (PMC13) Clean and Sustainable Transportation- Trends, Technologies, Policies and Roadmap for India.

C.K. Subramaniam

IITM Chennai India, Feb 2013.

24. TECXPEDITION 2013: Sponsored by KPIT Cummins and SAEINDIA:

C.K. Subramaniam

16 Jan 2013 Bangalore

25. ISCAS2014: IEEE Int Symp on Circuits and Systems Melbourne.

C.K. Subramaniam

June 1 – 5, 2014, Melbourne.

26. 2015 Materials Research Society Spring Meeting & Exhibit,

C.K. Subramaniam

April 6 – 10, 2015, San Francisco, USA.

CONSULTANCY

2014	Vittla Eye Hospital Bangalore	Neo Natal RetinaCam development (With TIFAC –CORE)	Rs. 10,00,000
2013	Amara Raja Batteries	Development of BMS for Li Batteries (With TIFAC –CORE)	Rs 4,00,000

PROJECT APPLIED

1. DEMONSTRATION OF 1.0 KW POLYMER ELECTROLYTE MEMBRANE FUEL CELL BASED INTERGRATED POWER SOURCE, Ministry of New and Renewable Energy

Research, Design & Development (RDD&D) Projects In Hydrogen Energy and Fuel Cell - March 2015.

C.K Subramaniam SAS VIT University

Partners: TIFAC CORE for Automotive Electronics

Total Project Cost: INR 329, 00,000.00

WORKSHOPS/CONFERENCES Conducted at VIT Vellore:

1. Two Day Fuel Cell Education and Training Program with TIFAC Core 4 and 5th April 2011.

2. National Conference on Research Trends & Challenges in Automotive Electronics 12- 13 Oct 2012 Sponsored by Delphi – TCI Bangalore.

3. Workshop on Automotive Power Sources and EMS for EV & HEV 2 – 4 Aug 2012.

4. Two Day Workshop on Design of solar panel based applications for Engineers

09th – 10th March 2014.

5. Battery Management System and Modeling of Battery using MATLAB/SIMULINK
17th-18th August, 2014

PHD/MS BY RESEARCH STUDENTS:

PhD Students – 3 : MS by Research – 1

REVIEWS:

EV WORLD:

Indian University Students Develop Hybrid-Electric Autorickshaw

With some 250,000 gas-powered autorickshaws in operation across India, a hybrid electric version that can reduce fuel consumption 25 percent can save money and reduce emissions.

Published: 29-May-2014

A team of students of the VIT University here has developed a hybrid autorickshaw which can run on battery as well as on petrol.

The project was completed in the Technology Information Forecasting Assessment Council-Centre of Relevance and Excellence (TIFAC-CORE) in the Automotive Infotronics Centre, under the leadership of K. Ganesan, Director of the Centre. The final-year M. Tech. students of Automotive Electronics were guided by C.K. Subramaniam, Professor, School of Advanced Science, VIT.

The team worked towards reducing the fuel cost of the autorickshaw by Re. 1 a km. Givith, one of the team members, says the reduction is huge given the 25 lakhs of autorickshaws running in the country.

THE HINDU

VIT students develop hybrid autorickshaw

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A 25 per cent reduction in emission is an added feature of the vehicle since it will be running on the battery in the first, second and third gears and runs on petrol mode in the fourth gear, says Nithin P.V., another team member.

Jayapal, also part of the team, says the addition of electric motor powered by batteries and supporting circuitries is the overall modification required to convert a normal

autorickshaw into a hybrid one. This conversion cost the team Rs. 45,000. Large-scale production of such vehicles will bring the cost further down, the students say. According to Jerin, another member of the team, the electric motor runs on a 60-V battery pack, which is coupled to the gearbox of the auto. The auto runs on motor initially and the driver can shift to the petrol mode when the vehicle reaches 15 kmph.

G. Viswanathan, VIT Chancellor; Sekar Viswanathan and G.V. Selvam, vice-presidents; V. Raju, vice-chancellor; and S. Narayanan, pro-vice-chancellor, congratulated the students on their invention.