

CURRICULUM VITAE

PERSONAL INFORMATION			
Name	Sheela	K.	Ramasesha
Permanent Address	151, 5 th Cross Road, NGEF Layout, Sanjay Nagar, Bangalore 560094		
Cell number	09972282356	Email	Sheela.ramasesha@gmail.com
Nationality	Indian	Gender	Female

I have worked in many universities and organizations around the world. I have made substantial contributions to the scientific content on varied topics in science and technology. Specifically, in the field of clean energy, as a project lead led a team in GE Global Research Centre and designed an alloy for use as interconnect in solid oxide fuel cells. This alloy performed 3 times better than the state of the art alloy for which we were honoured with a performance award. Similarly, in the solar photovoltaic technology, I formulated a process for selenization of the alloy for making CopperIndium-Gallium (CIGS) layer which has been patented. Currently, I am leading the effort on Solar Photovoltaic Technologies of the Global Technology Watch Group for Department of Science and Technology, Government of India in addition to carrying out research in renewable energy technologies.

EDUCATION:	
Ph.D.	Chemistry, Indian Institute of Science, Bangalore
M.Sc.	Chemistry, Bangalore University
WORK EXPERIENCE: <i>In reverse chronological order with dates and nature of duties</i>	
DATE	DETAIL
Dec 2010 - Apr. 2017	Visiting Scientist, Divecha Centre for Climate Change, Indian Institute of Science, Bangalore Nature of duties: Research in renewable energies technologies and Climate sciences.
Jan 2009 – Dec 2010	Consultant Nature of duties: Providing consultation to private companies on renewable energy issues.
Dec. 2003 – Aug 2008	Manager, General Electric(GE) R&D Center Nature of duties: Managerial and leading R&D activities in a wide range of technical areas

Dec 2001 – Dec 2003	Materials Scientist, General Electric(GE) R&D Center Nature of duties: Project leadership and R&D activities in Solid Oxide Fuel Cells (SOFC)
Jan.'94 – Nov. 2001	UGC Res. Sci., Category `C', (Equivalent to the grade of Professor), Mater. Science Div., National Aerospace Lab, Bangalore, Nature of duty: Research on Ceramic matrix and metal matrix composites
Jan. 1989-Jan.1994	UGC Res. Sci., Category `B', (Equivalent to the grade of Asst. Prof.), Mater. Science Div., National Aerospace Lab, Bangalore, Nature of duty: Research on properties of materials under high pressure
Feb.1988 - Jan.1989	Research Associate, Metallurgy Department I.I.Sc., Bangalore, Nature of duty: Research on solid state ionic materials
Dec.1984 - Dec.1987	CSIR Pool Officer, Physics Department I.I.Sc., Bangalore, Nature of duty: Research on transport properties of materials
Dec.1982 - Jun.1984	Postdoctoral Research Associate, Chemistry Department, Princeton Univ. USA. Nature of duty: Research on laser spectroscopy
Feb.1982 - Sep.1982	Postdoctoral Research Associate, Chemistry Department, Louisiana State Univ., USA Nature of duty: Research on Single Crystal x-ray diffraction studies
Sep.1979- Nov.1981	Postdoctoral Research Associate, Inorganic Chemistry Laboratory, Oxford University, U.K. Nature of duty: Research in solid state chemistry

Extended Visits:

- Visiting Scientist - Department of Chemistry, Princeton University, Princeton, USA, Jul. - Aug., 1988.
- Visiting Scientist - Physics Department, Princeton University, Princeton, USA, Mar. - Aug., 1992.
- JSPS visiting Scientist - Kyushu National Industrial Research Institute, Tosu, Japan - Oct. 1996.
-Institute of Solid State Physics, Tokyo University, Tokyo, Japan - Nov. 1996

Awards and Honors Received:

- Materials Research Society of India (MRSI) medal for 2001.
- C.V. Raman Young Scientist Award for 1999 awarded by the KSCST.
- 2 Management awards for performance at GE
- Ecomagination champion award at GE
- Featured in "Lilavati's Daughters" brought out by The Indian Academy of Sciences, for highlighting successful woman professionals in science.
- UNESCO certificate of Recognition (1990)
- Merit Prize in Mathematics at Bachelor of Science degree □ National Merit Prize at Secondary School Leaving Examination

Six Sigma Achievements (In GE):

- Green Belt certified - Nov. 2002.
- Black Belt certified - Dec 2004.

Professional Services:

- Serving as a referee for many International Journals.
- Served on the editorial advisory board of "Journal of Active and Passive Electronic Components", an international journal published by Gordon and Breach Scientific Publishers.

Community Service:

- For the past 8 yrs, sponsoring mid-day meals for the full year for 500 to 1000 students through Akshaya Patra.
- As a member of the Lioness Club, I was involved in many charity activities like clothes drive for the orphanages, artificial limbs for the physically challenged persons and conducting quiz programmes in poor neighbourhood schools.
- Supported education of two high school students for 3 years.
- Annually sponsored prizes for meritorious students in under privileged primary schools, for 5 years.
- Instituted merit prizes for girl students in Classes 8 and 9 in Science and Math subjects.
- Support running of Seva Sadan, a girls orphanage, in Malleshwaram, Bengaluru

Publications:

- 1) Murugaiya Sridar Ilango and **Sheela K. Ramasesha**, "Patterning of nanopillars-based CdS/CdTe thin films for photonic applications", Surface Engg. (2017).
- 2) Amruta Mutalikdesai and **Sheela K Ramasesha**, "Solution Process for Fabrication of Thin film CdS/CdTe Photovoltaic (PV) cell with TiO₂ buffer layer", Thin Solid Films 632, 73-78 (2017).
- 3) M. Shrvanth Vasisht, G.A. Vashista, J. Srinivasan and **Sheela K. Ramasesha**, "Rail coaches with rooftop solar photovoltaic systems: A feasibility study", Energy, 118, 684-691 (2017).
- 4) M. Shrvanth Vasisht and **Sheela K. Ramasesha**, "Forecast of solar power a key to power management and environmental protection", Clean Technologies and Environmental Policy, 19(1), 279-286, (2017).
- 5) Vashista G Ademane, Harsh Kamath, N.J. Ekins-Daukes, Kenji Araki and **Sheela K Ramasesha**, "Outdoor performance study of a 550X concentrator photovoltaic system in Bangalore", International Photovoltaic Science and Engineering Conference ("PVSEC-26"), Singapore, 24 - 28 October 2016.
- 6) M. K. Darshana, K. Karnataki, G. Shankar and **Sheela K. Ramasesha**, "A Practical Implementation of Energy Harvesting, Monitoring and Analysis System for Solar Photovoltaic Terrestrial Vehicles in Indian Scenarios", 2015 IEEE International WIE Conference on Electrical and Computer Engineering (WIECON-ECE), 19-20 Dec. 2015, pp 542 - 545.
- 7) S. R. Adheesh, M. Shrvanth Vasisht and **Sheela K. Ramasesha**, "Air- pollution and economics: diesel bus versus electric bus", Current Science, 110(5), 858- 862(2016).
- 8) M. Shrvanth Vasisht, J. Srinivasan and **Sheela K. Ramasesha**, "Performance of solar photovoltaic installations: Effect of seasonal variations", Solar energy, 131, 39 – 46 (2016).
- 9) Murugaiya Sridar Ilango, Amruta Mutalikdesai and **Sheela K. Ramasesha**, "Anodization of Aluminium using a fast two - step process", J. Chem. Sci. 128, No. 1, 153 - 158 (2016).

- 10) **Sheela K. Ramasesha**, "Solar Energy: An Introduction", Book Review, Current Science, 110 (12) 2307-2308 (2016).
- 11) K.N Nithyayini and **Sheela k Ramasesha**, "Fabrication of Semi-Transparent Photovoltaic Cell by a Cost-Effective Technique" Metallurgical and Materials Transaction E, Vol. 2E, 157 - 163 (2015).
- 12) Roshan R. Rao, H. R. Swetha, J. Srinivasan and **Sheela k Ramasesha**, "Comparison of performance of solar photovoltaics on dual axis tracker with fixed axis at 13degrees N latitude" Current Science, VOL. 108 (11), 2087 - 2094 (2015).
- 13) A. Banerjee, **S. K. Ramasesha** and A. K. Shukla, "A photovoltaic stand-alone lighting system polymeric-silica-gel-electrolyte-based substrate-integrated lead-carbon hybrid ultracapacitors" Electrochem. Energy Techn. 1, 10 - 16 (2015).
- 14) Murugaiya Sridar Ilango, Vijay Monterio and **Sheela K Ramasesha**, "Fabrication of back contacts using laser writer and photolithography for inscribing textured solar cells" Bull. Mater. Sci., 38 (1), 191-196 (2015).
- 15) M. Shrvanth Vasisht, C.Vishal, J.Srinivasan, **Sheela K. Ramasesha**, "Solar photovoltaic assistance for LHB rail coaches", Current Science, 107(2), 255-259 (2014).
- 16) **Sheela K. Ramasesha**, "Challenges in the Quest for Clean Energies 4. Other Renewable Resources and Conclusion", Resonance, 18(12), 1110 - 1126 (2013).
- 17) **Sheela K. Ramasesha**, "Challenges in the Quest for Clean Energies 3. Wind Technologies", Resonance, 18(8), 757-770 (2013).
- 18) **Sheela K. Ramasesha** and Arindam Chakraborty, Power generation using wind energy in northwest Karnataka, India, Current Science, 104(6), 757- 761 (2013).
- 19) **Sheela K. Ramasesha**, "Challenges in the Quest for Clean Energies 2. Solar Energy Technologies", Resonance, 18(3), 440-57 (2013).
- 20) **Sheela K. Ramasesha**, Challenges in the Quest for Clean Energies I. Background, Resonance, 18(5), 206 - 17 (2013).
- 21) Laxman Gouda, Yelameli Ramesh Aniruddha, **Sheela K. Ramasesha**, "Correlation between the Solution Chemistry to Observed Properties of CdTe Thin Films Prepared by CBD Method" J. Mod. Phys., 3, 1870-1877 (2012).
- 22) Srikari Tantri P., **Sheela K. Ramasesha**, J.-S. Lee, T. Yano and U. Ramamurty, "Effect of Double Reinforcements on Elevated Temperature Strength and Toughness of Molybdenum Disilicide", J. Am. Ceram. Soc. 87(4), 626-632 (2004).
- 23) A. Mark Thompson, **Sheela K. Ramasesha**, D. J. Lewis, Jie Guan, M. R. Jackson, N S. Hari, A. Verma, A. D. Chinchure, K. J. Vaidya, M. S. Walker, "Metal Interconnect Alloys for Extended SOFC Life", Fuel Cell Seminar 2004, Nov. 1 - 5, San Antonio, Texas.
- 24) "Solid Oxide Fuel Cells - Challenges and Opportunities", Oral Presentation, National Seminar on Creating Infrastructure for Adoption of Fuel Cell Technology in India, organized by NTPC, Feb. 10-11, 2004, PMI, Noida (UP), India
- 25) E. Moses Jayasingh, S.P.Tantri, T.A. Bhaskaran, S.K. Biswas and **S. K. Ramasesha**, "Performance of Monolithic and TiB₂ reinforced MoSi₂ in dry sliding contact with steel" Mater. Lett. 53(4-5), 379-383 (2002).
- 26) S.P.Tantri, E. Moses Jayasingh, S.K. Biswas and **S. K. Ramasesha**, "Role of in-situ generated tribofilm in the tribological characteristics of Monolith and TiB₂ reinforced MoSi₂ Intermetallic", Mater. Sci. Engg. A 336(1-2), 64-71 (2002).
- 27) Anup K. Bhattacharya, T.A. Bhaskaran and **Sheela K. Ramasesha**, "Aluminum Infiltration into Molybdenum Silicides Preform", J. Am. Ceram. Soc. 85(9) 2364-2366 (2002).
- 28) V. Bhat and **Sheela K. Ramasesha**, "Synthesis of ternary molybdenum carbo silicide" Ceramic International, 28(4), 459-461 (2002).
- 29) Geasin Savio and **Sheela K. Ramasesha**, "Slip Casting of high density MoSi₂ components" Mater. Lett. 57(1), 43-47 (2002).

- 30) Srikari Tantri P., S. Ushadevi and **Sheela K. Ramasesha**, "High temperature x-ray studies of Ba/Sr zirconium phosphates", *Mater. Res. Bull.* 37(6), 1141-1147 (2002).
- 31) Anup K. Bhattacharya and **Sheela K. Ramasesha**, "Effect of Temperature and Soaking Time on the Synthesis of $\text{Mo}(\text{Al},\text{Si})_2$ " *Ceram. International* 27, 829-831. (2001).
- 32) **Sheela K. Ramasesha**, Srikari Tantri P. and Anup K. Bhattacharya, "MoSi₂ and MoSi₃ - based materials as structural ceramics", *Met. Mater. Processes* 12, 181 -190 (2000).
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- 34) Srikari Tantri P., K. Geetha, A.M. Umarji and **Sheela K. Ramasesha**, "Thermal expansion behavior of Barium and strontium Zirconium Phosphates" *Bull. Mater. Sci.* 23(6), 491 - 94 (2000).
- 35) **Sheela K. Ramasesha**, "Ceramic Science and technology: Part 3" *Resonance*, 5(2), 4 - 11 (2000).
- 36) Shivananda, **Sheela K. Ramasesha** and Biswas, S.K., 2000, Proc. International Tribology Conference, Nagasaki, Japan, "A new approach to mild wear", 385
- 37) **Sheela K. Ramasesha** and K. Shobu, "Oxidation of MoSi₂ and MoSi₃ - based Materials", *Bull. Mater. Sci.* 22(4), 769 - 773 (1999).
- 38) **Sheela K. Ramasesha**, "Ceramic Science and technology: Part 1" *Resonance*, 4(8), 16 - 24 (1999).
- 39) **Sheela K. Ramasesha**, "Ceramic Science and technology: Part 2" *Resonance*, 4(12), 21 - 30 (1999).
- 40) Y. Sekine, **S.K. Ramasesha**, H. Takahashi and N. Mori, "Effect of Pressure on Thermoelectric Power of $\text{Ni}(\text{S}_{1-x}\text{Se}_x)_2$ ", *Rev. of High Pressure Sci. and Techn.* 7, 629-631 (1998).
- 41) **Sheela K. Ramasesha** and K. Shobu, "Reactive Infiltration of Aluminium into Molybdenum Disilicide preform" *J. Am. Ceram. Soc.* 81(3), 730-32 (1998).
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- 50) **Sheela K. Ramasesha** and A.K. Singh, "Measurement of electrical Resistance Across the Orientational Phase Transition in Solid C₆₀ Under Pressure" *Solid State Commun.* 91, 25 - 28 (1994).
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- 54) **Sheela K. Ramasesha** and A.K. Singh, "Thermoelectric Power of YBa₂Cu₄O₈ under Pressure" in "Recent Trends in High Pressure Research", ed. A.K.Singh, pp 419-421 (1992).

- 55) **S. K. Ramasesha** and A.K. Singh, "Variation of Thermoelectric power of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ under pressure up to 9 GPa", *Bull. Mater. Sci.* **14(3)**, 767-770 (1991).
- 56) **Sheela K. Ramasesha** and Anil K. Singh, "Measurement Under Pressure of Thermoelectric Power along the thickness of a Thin Specimen", *Rev. Sci. Instrum.* **62**, 1372 (1991).
- 57) **Sheela K. Ramasesha**, A.K. Singh and P. Murugaraj, "Anisotropic Thermoelectric Power Behaviour of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ Single Crystals Under Pressures Up to 8 GPa", *Phys. Rev. B* **43**, 8620-23 (1991).
- 58) **Sheela K. Ramasesha** and K.T. Jacob, "Madelung Energy and Hole Location in of $\text{YBa}_2\text{Cu}_4\text{O}_8$ ", *J. Mater. Chem.* **1(3)**, 477 - 78 (1991).
- 59) **Sheela K. Ramasesha** and A.K. Singh, "Thermoelectric power of Tellurium Under pressures up to 8 GPa", *Phil. Mag. B* **64(5)**, 559 - 62 (1991).
- 60) **Sheela K. Ramasesha** and K.T. Jacob, "EMF of a Bielectrolyte cell", *Electrochim. Acta* **35**, 785-789 (1990).
- 61) **Sheela K. Ramasesha**, Tom Mathews and K.T. Jacob, "High-Temperature Seebeck Coefficient of $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$ ", *Mater. Res. Bull.* **25**, 149-155 (1990).
- 62) **Sheela K. Ramasesha** and S.A. Payne, "Electronic Spectroscopy of $\text{KF}:\text{Cu}^{2+}$ ", *Physica B* **167**, 56-60 (1990).
- 63) **Sheela K. Ramasesha** and K.T. Jacob, "Effect of hole localisation in $\text{YBa}_2\text{Cu}_3\text{O}_7$ from Madelung Calculations", *Mater. Lett.* **10**, 239-242 (1990).
- 64) **Sheela K. Ramasesha** and K.T. Jacob, "Fundamental Studies on Nonisothermal Galvanic Cells - Effect of Gradients on EMF", *J. Appl. Electrochem.* **19**, 394-400 (1989).
- 65) K.T. Jacob and **Sheela K. Ramasesha**, "Design of Temperature Compensated Reference Electrode for Nonisothermal Galvanic Cells", *Solid State Ionics* **34**, 161-166 (1989).
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- 67) **Sheela K. Ramasesha** and K.T. Jacob, "Non-isothermal Galvanic cells", *Materials Research Society of India, Foundation Meeting*, 57-58 (1989).
- 68) K.T. Jacob and **Sheela K. Ramasesha**, "Temperature compensated Reference Electrodes for Non-isothermal Galvanic sensors", *91st Annual Meeting of The American Ceramic Society*, 47-E-89 (1989).
- 69) M. Rajeswari, **S.K. Ramasesha** and A.K. Raychaudhuri, "Continuous cooling calorimetry for specific heat measurements in the temperature range 100-300 K", *J. Phys. E* **21**, 1017-22 (1988).
- 70) **Sheela K. Ramasesha** and K.T. Jacob, "X-Ray and IR Characterisation of Nasicon Solid Solution, $\text{Na}_{1-x}\text{Zr}_2\text{Si}_x\text{P}_{3-x}\text{O}_{12}$ ", *Mater. Lett.* **7**, 61-64 (1988).
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- 73) **Sheela K. Ramasesha** and Donald S. McClure, "Solid-State Exciplex in $\text{SrF}_2:\text{Yb}^{2+}$ ", *Ind. J. Cryogenics* **11**, 618-626 (1986).
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- 75) **Sheela K. Ramasesha**, S.F. Watkins and F.R. Fronczek, "1RS-15- Thiabicyclo [10.7.0] nonadec-1(12)-ene-15, 15 dioxide $\text{C}_{18}\text{H}_{32}\text{SO}_2$ ", *Acta Cryst.* **C41**, 232-34 (1985).
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- 78) J.B. Goodenough and **Sheela Ramasesha**, "Further evidence for the co-existence of localised and itinerant 3d electrons in La_2NiO_4 ", *Mater. Res. Bull.* **17**, 383-90 (1982).

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PATENTS

US Patents filed :

- U.S. 7,745,029 (20100629), Ferritic steels for solid oxide fuel cells and other high temperature applications
- U.S. 7,728,499 (20100601), Thermal management of high intensity discharge lamps, coatings and methods
- U.S. 8,779,283 (20140715), Absorber Layer For Thin Film Photovoltaics And A Solar Cell Made There From

US Patent applications :

- 20090194149 – Low Band Gap Semiconductor Oxides, Processes for Making the Same, and Dye Sensitized Solar Cells Containing the Same
- 20080142755 - Heater apparatus and associated method
- 20070224451 - Composition, coating, coated article, and method
- 20070221132 - Composition, coating, coated article, and method
- 20070132153 - Ceramic arc tubes with reduced surface scatter and related methods
- 20070122304 - Alloys for intermediate temperature applications, methods for manufacturing thereof and articles comprising the same
- 20070087250 - Alloy for fuel cell interconnect
- 20050221138 - Fuel cell system

Indian Patent application : 2846/CHE/2012 - Photovoltaic Cell