

## **N.S.Venkata Narayanan**

Assistant Professor

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### **Professional Experience**

- 2014 to till date, Assistant Professor, **Central University of Karnataka**
- January 2012 to February 2014, Research Associate at **Imperial College London**, London, United Kingdom
- January 2010 to January 2012, Research Associate at **National Research Council of Canada**, Ottawa, ON, Canada

### **Academic Qualifications**

- **PhD** at Inorganic & Physical Chemistry Department (Research Supervisor: Prof.S.Sampath), **Indian Institute of Science, Bangalore**, India in December 2009
- **Master of Science (M.Sc) in Chemistry** at The American College (Autonomous), Madurai affiliated to Madurai Kamaraj University with 74% marks and qualified in I class in 2003
- **Bachelor of Science (B.Sc) in Chemistry** at St. Xavier's College (Autonomous), Palayamkottai affiliated to Manonmaniam Sundaranar University with 89.7% marks and qualified in I class with distinction in 2001

### **Additional Qualifications**

- Qualified **Graduate Aptitude Test in Engineering (GATE)** during the academic year 2003
- Qualified **National Eligibility Test (NET)** for Lectureship conducted by University Grants Commission & Council of Scientific and Industrial Research (**UGC-CSIR**) during the year 2003-2004

### **Fellowships**

- **Research Associate Fellowship** from Imperial College London in an EPSRC funded project from January 2012 to February 2014
- National Research Council of Canada **Post Doctoral Research Fellowship** at Institute for Chemical Process and Environmental Technology in NRC, Ottawa, Ontario from January 2010 to January 2012
- **Senior Research Fellow (SRF)** at Indian Institute of Science, Bangalore from August 2005 to December 2009

- **Junior Research Fellow (JRF)** at Indian Institute of Science, Bangalore from August 2003 to August 2005
- **Sandwich PhD Research Scholarship** offered by French Embassy in India from October 2007 to January 2008

### **Awards & Prizes**

- A. S. R. Memorial prize for excellence in Chemistry in the academic year 2002-2003 during Master of Science (M.Sc.)
- Overall Academic Rank holder and won certificates of merit for excellence in Chemistry during Bachelor of Science (B.Sc.)
- Sponsorship & Travel Grant awarded by ARCUS-INDIA program of University of Joseph Fourier at Grenoble during PhD to participate European Summer School on Nanoscience and Nanotechnology (ESONN 2007) at Grenoble, France.
- Travel Grant & full expenses provided by French Embassy in India for Sandwich PhD research Scholarship (4 months) at University of Joseph Fourier, Grenoble, France

### **Membership of Professional Society**

- Affiliate member of Royal Society of Chemistry (RSC)

### **Research Interest**

- **Room Temperature Molten Solvents/Ionic Liquids/Deep Eutectics**  
Amide based eutectic solvents, Ionic liquids, and electrochemical studies in room temperature molten solvents and ionic liquids.
- **Electrochemical Energy Storage Devices**  
Application of molten solvents/ionic liquids to electrochemical energy storage devices, metal containing ionic liquids for redox-flow batteries, Rechargeable magnesium & zinc-based batteries, electro-catalysts for ORR, HER and methanol oxidation, direct methanol and proton exchange membrane fuel cells
- **Modified Electrodes, Nanostructures for Electro-catalysis, Bio-sensors and Surface enhanced Raman scattering**  
Design & synthesis of nanostructures with application in the field of electro-catalysis and as a substrate for SERS and SERRS detection. Design and fabrication of modified electrodes via self-assembly and other step by step assembly methods.

### **Summer School**

Participated in European Summer School on Nanoscience and Nanotechnology (ESONN 2007) at Grenoble, France from August 26 to September 15, 2007.

## Research Publications

- 1) Amide-based Room Temperature Molten Salt as Solvent cum Stabilizer for Metallic Nanochains. N.S.Venkata Narayanan and S.Sampath, *J. Clus. Sci.*, **2009**, *20*, 375.
- 2) Physicochemical, Electrochemical and Spectroscopic Characterization of Zinc-Based, Room Temperature Molten Electrolytes and Their Application in Rechargeable Batteries. N.S.Venkata Narayanan, B.V.Ashokraj and S.Sampath, *J. Electrochem. Soc.*, **2009**, *156(11)*, A863.
- 3) Magnesium Ion Conducting, Room Temperature Molten Electrolytes N.S.Venkata Narayanan, B.V.Ashokraj and S.Sampath, *Electrochem. Commun.*, **2009**, *11(10)*, 2027.
- 4) Phthalocyanine Macrocycle as Stabiliser for Au and Ag Nanoparticles. K.S. Lokesh, Venkata Narayanan and Srinivasan Sampath, *Microchim. Acta.*, **2009**, *167(1-2)*, 97.
- 5) Ambient Temperature, Zinc ion - Conducting, Binary Molten Electrolyte Based on Acetamide and Zinc Perchlorate: Application in Rechargeable Zinc Batteries N.S.Venkata Narayanan, B.V.Ashokraj and S.Sampath, *J. Colloid Interface Sci.*, **2010**, *342(2)*, 505.
- 6) Physicochemical, Spectroscopic and Electrochemical Characterization of Magnesium Ion - Conducting, Room Temperature, Ternary Molten Electrolytes N.S.Venkata Narayanan, B.V.Ashokraj and S.Sampath, *J. Power Sources.*, **2010**, *195(13)*, 4356
- 7) Study of the electrochemical oxygen reduction on gold, boron-doped diamond and glassy carbon electrodes in acetamide – urea – ammonium nitrate eutectic melt, V.S. Dilimon, N.S.Venkata Narayanan and S. Sampath, *Electrochim. Acta.*, **2010**, *55(20)*, 5930.
- 8) Plasmon-Tuned Silver Colloids for SERRS Analysis of Methemoglobin with Preserved Nativity, Govindasamy Kalaivani, Arumugam Sivanesan, Ayyadurai Kannan, N.S.Venkata Narayanan, Agnieszka Kaminska, and Ranganathan Sevel, *Langmuir*, **2012**, *28 (40)*, 14357–14363
- 9) Regenerative Silver Nanoparticles for SERRS Investigation of Metmyoglobin with Conserved Heme Pocket, Govindasamy Kalaivani, N.S.Venkata Narayanan,

Arumugam Sivanesan, Ayyadurai Kannan, Agnieszka Kaminska and Ranganathan Sevvel, *RSC.Adv.*, **2013**, 3, 6839-6846.

- 10) Spontaneous Formation of Branched Nanochains From Room Temperature Molten Amides: Visible and Near – IR Active, SERS Substrates for Non-Fluorescent and Fluorescent Analytes, K. L. Nagashree, R. Lavanya, C. Kavitha, N.S.Venkata Narayanan and Srinivasan Sampath, *RSC.Adv.*, **2013**, 3, 8356-8364.
- 11) Nickel phosphide: the effect of phosphorus content on hydrogen evolution activity and corrosion resistance in acidic medium, Anthony R. J. Kucernak and Venkata N. Naranammalpuram Sundaram, *J. Mater. Chem. A*, **2014**, 2, 17435-17445

### **Papers Presented in Research Symposia / Conferences**

- 1) Presented a poster in Chemistry of Materials conference organized by JNCASR, Bangalore and RRL, Trivandrum held in Kollam during October 2005.
- 2) Oral presentation in the departmental in-house symposium at IISc during March 2006.
- 3) Presented a poster in Indo-Australian conference on Nanoscience and Nanotechnology from March 31 to April 1, 2006 at IISc, Bangalore.
- 4) Oral Presentation in ISAEST-8 international conference organized by SAEST and CECRI Karaikudi held in Goa during November 2006.
- 5) Presented a poster in inter-departmental Chemical Science Divisional day on Jan 20, 2007, at IISc Bangalore.
- 6) Presented a poster in ESONN 2007 summer school at Grenoble, France.
- 7) Co-authored a poster at 23rd International Conference on Raman Spectroscopy, Bangalore, India (ICORS 2012) August 12 - 17, 2012.
- 8) Co-authored a poster at conference on Advanced Infrared and Raman Spectroscopy at Łochów, November 16-18, 2012 organized by Polish Academy of Sciences, Warsaw, Poland

### **Mentoring & Supervising Research Activities**

- Assisted and mentored graduate research scholars from Gandhigram University, Madurai Kamaraj University both from India, Catholic University of Leuven from Belgium both during PhD as well as during post-doctoral studies.
- Mentored & co-supervised research project assistants during PhD at Indian Institute of Science
- Co-supervised co-op(Bachelors) & research students at National Research Council of Canada
- Mentored and co-supervised, Bachelors and Masters students from Imperial College London