

Dr. VENKATRAMAIAH NUTALAPATI
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Research Interests

- ❖ Synthesis of functional porphyrin/phthalocyanine macromolecules for detection of toxic gases and nitroaromatics.
- ❖ Organic-inorganic hybrid materials for energy applications
- ❖ Supramolecular chemistry (Synthesis, photophysical, structural characterization)
- ❖ Development of covalent and non-covalent appended Graphene-porphyrin hybrids for opto-electronic and solar energy applications

Academic Qualification Education

- 2011-2012** : Research Associate with **Prof. T.N. Guru Row** and **Dr. Satish Patil**
Solid State and Structural Chemistry Unit
Indian Institute of Science, Bangalore, India.
- 2006- 2011** : Doctor of Philosophy (Ph. D)
Department of Chemistry, Pondicherry University, India.
Thesis title : Porphyrin based hybrid materials: Photophysical, structural investigation and application as hybrid materials and HCl gas sensors.
Supervisor : **Dr. R.Venkatesan**
- 2004-05** : Master of Philosophy (M. Phil)
Department of Chemistry, Pondicherry University, Puducherry, India.
Thesis Title : One electron chemical oxidation of Copper (II), Nickel (II) Tetraphenyl porphyrins- EPR and *Abinitio* studies
Supervisor : **Dr. R.Venkatesan**
- 2002-2004** : Master of Science in Analytical chemistry (M.Sc)
Department of Chemistry, Acharya Nagarjuna University post graduate centre, Nuzvid campus, Nuzvid, Andhra Pradesh, India.

Awards and Fellowships

- Senior Research Fellow, CSIR **2006-2009**
- FCT Postdoctoral fellowship, FCT **2012-2015**

Knowledge in Computers

In computational Chemistry: (a) Gaussian 09/03, Hyper Chem 8/7/5,

ADF 2008/2009, Material studio 4.2, Gauss view 4.0/4.2.

PATENTS

1. A sensor device for HCl gas detection, **Nutalapati Venkatramaiah**, Jisha. V Kurup, Rengarajan Venkatesan, *Indian Patent* (2010) IN 2008DE02599.
2. Tunable band pass filters for UV and visible light, **Nutalapati Venkatramaiah**, Rengarajan Venkatesan, *Indian Patent filed*.

PUBLICATIONS

2012

1. Fluoranthene based selective fluorescent chemosensors for detection of explosive nitroaromatics, **N.Venkatramaiah**, Shiv kumar and Satish Patil, *Chem. Comm.*, DOI: 10.1039/c2cc31606d.
2. Excimer Formation in a Naphthalene-Appended Diketopyrrolopyrrole derivatives, Gitish K. Dutta, **N.Venkatramaiah** and Satish Patil, Revised to *Phys. Chem. Chem. phys.*
3. Thieno[3,2-b]thiophenediketopyrrolopyrrole-benzo[1,2-b:4,5-b]dithiophenebased polymer for Ambipolar Field-Effect Transistors and Solar Cells, By Kristen Tandy, Gitish K. Dutta, **N.Venkatramaiah**, Yuliang Zhang, Muhsen Aljada, Paul Meredith, Paul L. Burn, Satish Patil, Ebinazar B. Namdas, Accepted Manuscript in *Organic Electronics*.
4. Influence of Side-Chain on Structural Order and Photophysical Properties in Thiophene based Diketopyrrolopyrroles: A Systematic Study, Mallari A.Naik, **N. Venkatramaiah**, Catherine Kanimozhi and Satish Patil, Revised to *J. Mater. Chem.*
5. Synthesis and structural characterization of novel BF₃-induced TPPS₄-J-aggregates, **N. Venkatramaiah** and R.Venkatesan. Revised to *Phys. Chem. Chem. phys.*
6. Structure and aggregation behavior of hydroxy porphyrins with Organic acids, **N. Venkatramaiah** and R.Venkatesan. Manuscript submitted to *J. Phys. Chem. B*.
7. Optical transmission control in graphene and its organic composites with ultra-short pulses, M. Bala Murali Krishna, **N.Venkatramaiah**, R. Venkatesan and D. Narayana Rao. Manuscript Revised to *Mater.Chem.Phys.*
8. Linear and non-linear optical properties of N₃S-Porphyrin doped hybrid borate glasses, **N.Venkatramaiah** and R.Venkatesan, submitted to *Chem. Phys.*
9. Synthesis, Structural, Spectroscopic and nonlinear optical measurements of graphene oxide and its composites with metal, metal free porphyrins, M. Bala Murali Krishna, **N.Venkatramaiah**, R. Venkatesan, D. Narayana Rao, *J. Mater. Chem.*, 2012, 22, 3059-3068.
10. Role of modifier oxide in emission spectra and kinetics of Er-Ho codoped Na₂SO₄-MO-P₂O₅ glasses, P. Raghava Rao, **N.Venkatramaiah**, Y. Gandhi, V. Ravi Kumar, I.V. Kityk, N. Veeraiah, *Spec. chim. Acta Part A: Molecular and Biomolecular Spectroscopy*, 2012, 86, 472.

11. Enhanced Stokes shift and structural investigation of Sn(IV)Porphyrins doped hybrid borate glasses, **N.Venkatramaiah**, Buthanapalli Ramakrishna, A. Raveendra Kumar, N.Veeraiah and R.Venkatesan, *J. Alloys and Compd*, **2012**, *513*, 318-323.

2011

12. Environment effect on the optical and photophysical properties of Al(III)Porphyrin doped hybrid borate glasses, **N.Venkatramaiah**, N.Veeraiah and R.Venkatesan. *Mater. Chem. Phys.* **2011**, *130*, 134–139.

13. Emission features of Ho³⁺ ion in Nb₂O₅, Ta₂O₅ and La₂O₃ mixed Li₂O–ZrO₂–SiO₂ glasses, T. Srikumar, M.G. Brik, Ch. Srinivasa Rao, **N. Venkatramaiah**, Y. Gandhi, N. Veeraiah, *Physica B: Condensed Matter*, **2011**, *406*, 3592-3598.

14. Nonlinear optical properties of graphene- (OH, Sn) porphyrin composites in picosecond regime, M. Bala Murali Krishna, **N.Venkatramaiah**, R.Venkatesan, D. Narayana Rao, *AIP Conference Proceedings*, **2011**, 1391, 680-682.

15. Porphyrin based hybrid borate glasses: Photophysical and structural investigation, **N.Venkatramaiah** and R.Venkatesan. *Mater. Chem. Phys.* **2011**, *125*, 729–738.

16. Spectroscopic and dielectric studies of *meso*-tetrakis (p-sulfonatophenyl) porphyrin in borate glasses, **N. Venkatramaiah**, N.Veeraiah and R. Venkatesan. *J. Alloys and Compd*, **2011**, *509*, 2797-2803.

17. Optical and photophysical investigation of Meso, Proto and Hematoporphyrin(IX) dimethylester doped hybrid borate glasses, **N.Venkatramaiah**, Soorya.V.C and R.Venkatesan, *Physica B: Condensed Matter*. **2011**, *406*, 556-561.

18. Optical and luminescence investigations of hydroxy substituted porphyrins in borate glasses, **N. Venkatramaiah** and R. Venkatesan. *Solid. State. Sci.* **2011**, *13*, 616-624.

19. Nonlinear optical properties of covalently linked Graphene-Metal porphyrin composite materials, M. Bala Murali Krishna, V. Praveen Kumar, **N.Venkatramaiah**, R.Venkatesan, D. Narayana Rao. *Appl. Phy. Lett.* **2011**, *98*, 081106. (This also been selected for *Virtual Journal of Nanoscale Science & Technology*, **2011**, *23*(9)).

20. Microstructural, dielectric and spectroscopic properties of Li₂O–Nb₂O₅–ZrO₂–SiO₂ glass system crystallized with V₂O₅, T. Srikumar, Ch. Srinivasa Rao, Y. Gandhi, **N.Venkatramaiah**, V. Ravikumar, N.Veeraiah. *J. Phys. Chem. Solids*. **2011**, *72*, 190-200.

2010

21. Influence of crystallization on luminescence characteristics of Pr³⁺ ions in PbO–Sb₂O₃–B₂O₃ glass system, T. Satyanarayana, M.G. Brik, **N.Venkatramaiah**, I.V. Kityk, K.J. Plucinski, V. Ravikumar and N.Veeraiah. *J. Am. Ceram. Soc.* **2010**, *93*, 2004.

2009

22. Spectroscopic investigations on PbO–As₂O₃ glasses crystallized with TiO₂, G. Nagarjuna, T. Satyanarayana, V. Ravi Kumar, **N.Venkatramaiah**, P.V.V. Satyanarayana and N. Veeraiah. *Philos. Mag.* **2009**, 89, 2255–2270.
23. Spectroscopic, optical and dielectric properties of ZnF₂–As₂O₃–TeO₂ glass system doped with V₂O₅, Y.Gandhi, **N.Venkatramaiah**, V.RaviKumar, N.Veeraiah, *Physica B: Condensed Matter.* **2009**, 404, 1450–1464.
24. Fe₂O₃-induced crystallization and the physical properties of lead arsenate glass system, G. Nagarjuna, **N.Venkatramaiah**, P.V.V. Satyanarayana, N. Veeraiah. *J. Alloys and Compd.* **2009**, 468, 466–472.

2008

25. Features of the local structural disorder in Li₂O–CaF₂–P₂O₅ glass–ceramics with Cr₂O₃ as nucleating agent, G. Murali Krishna, Y. Gandhi, **N.Venkatramaiah**, R. Venkatesan, N. Veeraiah. *Physica B: Condensed Matter.* **2008**, 403, 702–710.
26. Induced crystallization and physical properties of Li₂O–CaF₂–P₂O₅:TiO₂ glass system Part II. Electrical, magnetic and optical properties, G. Murali Krishna, N. Veeraiah, **N.Venkatramaiah**, R. Venkatesan. *J. Alloys and Compd.* **2008**, 450, 486–493.
27. Induced crystallization and physical properties of Li₂O–CaF₂–P₂O₅:TiO₂ glass system Part I. Characterization, spectroscopic and elastic properties, G. Murali Krishna, N. Veeraiah, **N.Venkatramaiah**, R. Venkatesan. *J. Alloys and Compd.* **2008**, 450, 477–485.

2006

28. Stability of (Ni(II)TPP⁺) and (Ni(III)TPP)⁺ : EPR and Density functional calculations, **N.Venkatramaiah**, P.Sambasiva Rao and R.Venkatesan, Proceeding of International conference on molecules to materials (ICMM), SLIET, Longowal, Punjab, India, March 03-05, **2006**, P 148-152.

Presentations/Symposiums/Conferences

1. M. Bala Murali Krishna, V. Praveen Kumar, **N.Venkatramaiah**, R. Venkatesan, D. Narayana Rao, NLO studies of Graphene and its composites, The International Conference on Fiber Optics and Photonics – PHOTONICS, Indian Institute of Technology Guwahati, India, Dec 11-15, **2010**.
2. M. Bala Murali Krishna, V. Praveen Kumar, **N.Venkatramaiah**, R. Venkatesan, D. Narayana Rao, Enhanced optical nonlinearities of covalently linked Graphene-Zinc porphyrin composite materials, "DAE-BRNS National Laser Symposium (NLS)" at RRCAT, Indore, India, Dec.1-4, **2010**.
3. **N.Venkatramaiah** and R.Venkatesan, Synthesis and Structural characterization of BF₃-induced *meso*- Tetra (4-Sulfonato phenyl porphyrin (TPPS₄) J-aggregates, Cambridge University Winter school on Chemistry and Physics of materials at Jawaharlal Nehru centre for Advance scientific research, Bangalore, India Nov.31-Dec 05, **2009**.

4. **N.Venkatramaiah**, G. Suresh, T. Anil kumar and R.Venkatesan, Porphyrin embedded polymer films as Copper (II) ion selective ionophores, International seminar on Analytical Chemistry- Its importance in Industry, environment and Health, Andhra University, India, Nov-8-12, **2008**, P-27.
5. “Workshop on Scientific Research Instrumentation” Nov’9-11th 2006, Pondicherry University, Pondicherry-14. Participant **N.Venkatramaiah**.
6. **N.Venkatramaiah** and R.Venkatesan, One electron chemical oxidation of copper (II), nickel (II) tetra phenyl porphyrins- EPR and Abintio studies, in National Symposium on Electron Magnetic Resonance Society of India (**EMRSI**), Pondicherry University, India, March 24-25, **2006**.

Personal Profile

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References

1. **Dr. R. Venkatesan (Thesis supervisor)**

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