Faculty Details proforma for DU Web-site

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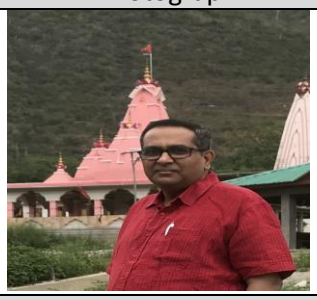
Title	Dr	First Name	Rajamani	Last Name	Nagarajan	Photograph
Designation		Professor				
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Educational Qualifications

Degree	Institution	Year
Ph.D.	Indian Institute of Science, Bangalore	1993
M.Phil. / M.Tech.	----------	----------
PG	Madurai Kamaraj University, Madurai	1987
UG	Madurai Kamaraj University, Madurai	1985

Career Profile

2011.....Professor, University of Delhi, Delhi, India
2005-2011.....Associate Professor, University of Delhi, Delhi, India
2004-2005.....Assistant Professor (Teaching), Department of Chemistry, Kansas State University, USA
2001-2004.....Post-doctoral Fellow, Department of Chemical Engineering, Kansas State University, USA
2002-2001..... Postdoctoral Fellow, Organ State University, USA
1999-2000.....Postdoctoral Fellow, Hebrew University of Jerusalem, Israel
1996-1999.....Assistant Professor, National Engineering College affiliated to Manonmaniam Sundaranar University, Tamil Nadu, India
1994-1996.....Research Associate, Jawaharlal Nehru Centre For Advanced Scientific Research, Bangalore, India
1993-1994..... Postdoctoral Fellow, Institut de Matériaux, Nantes, France

Administrative Assignments

Currently none

Areas of Interest / Specialization

Materials Chemistry, Synthesis, structure-Property relations in Solids, Laser Materials, Photovoltaic materials, Environmental Chemistry

Subjects Taught

1. Group Theory
2. Analytical Techniques
3. Inorganic Reaction Mechanism
4. Coordination Chemistry
5. Carbon nano tubes and their composites
6. Thermo analytical techniques
7. Synthesis and Characterization of nanomaterials
8. Supramolecular chemistry
9. Ligand Field Theory

Research Guidance

1. Supervision of awarded Doctoral Thesis.....20
2. Supervision of Doctoral Thesis, under progress.....06
3. Supervision of awarded M.Phil dissertations.....03

Publications Profile

1. Vishnu Kumar, Siddharth Choudhary Vidhu Malik, Rajamani Nagarajan, Asokan Kandasami and Annapoorni Subramanian, Enhancement in Photocatalytic Activity of $SrTiO_3$ by Tailoring Particle Size and Defects, Physica Status Solidi a, https://doi.org/10.1002/pssa.201900294.

2. Meenakshi Pokhriyal, Dileep Kumar yadav, Sachin, Sitharaman Uma and Rajamani Nagarajan, Rapid and one step transformation of $LiAlH_4$ to inorganic and organic anion intercalated Li-Al Layered Double Hydroxide. *Eur. J. Inorg. Chem.* 2019, https://doi.org/10.1002/ejic.201900111.

3. Manish Kumar, Vikash Kumar Tripathi and Rajamani Nagarajan, Consequences of lead incorporation in fluorite structured thoria. *Ceram Intl*, 2019, *45*, 11709-11716.

4. Pooja Rawat, Sanjay Kumar Saroj, Jasleen Kaur and Rajamani Nagarajan, Luminescent properties of K_2SbF_5: Ln (Ln =Eu^{3+}, Tb^{3+}, Er^{3+}) obtained by a facile room temperature cascade of mechanochemical synthesis. *J.Lumin.* 2019, *210,* 392-396.

5. Shalu, Vidhu Malik, Sitharaman Uma and Rajamani Nagarajan, Catalytic applications of mesoporous $CaBi_2O_4$ obtained from a single source precursor. *Res. Chem. Intermed*. 2019, *45*, 2457-2470.

6. Mohini Gupta, Mohammad Adnan, Rajamani Nagarajan, G.Vijaya Prakash, Color Tunable Upconversion in Er^{3+}/Yb^{3+} Co-Doped $KLaF_4$ Nanophosphors by Incorporation of Tm^{3+}- Ions for Biological Applications. *ACS Omega* 2019, *4*, 2275−2282.

7. Meenakshi Pokhriyal, Vikash Kumar Tripathi, Monica Sharma, Sitharaman Uma, Sevi Murugavel, Rajamani Nagarajan, Correlating oxide ion conductivity with ionic size of dopant and defect structures in ThO_2- $LnO_{1.5}$ (Ln = Y, La and Gd) prepared by modified epoxide gel method. *Solid State Ionics* 2019, *329*, 67-73.

8. A. Rathia, P. D. Babu, P. K. Rout, V. P. S. Awana, Vikash K. Tripathi, R. Nagarajan, B. Sivaiah, R. P. Panta, G. A. Basheed, Anomalous nano-magnetic effects in non-collinear spinel chromite $NiCr_2O_4$. *J. Magn. Magn. Mater.,* 2019, *474*, 585-590.

9. Vikash Kumar Tripathi, Rajamani Nagarajan, Influencing optical and magnetic properties of $NiCr_2O_4$ by the incorporation of Fe (III) for Cr (III) following epoxide gel synthesis. *J Electronic Mater* 2019, *48*, 1139-1147.

10. Manish Kumar, Meenakshi Pokhriyal, Mohini Gupta, G. Vijaya Prakash, Sitharaman Uma, Rajamani Nagarajan, Optical property evaluation of thoria doped with heavier rare earth oxides $LnO_{1.5}$ (Ln = Er^{3+}, Ho^{3+}, Tm^{3+}, Yb^{3+}). *J.Am.Ceram.Soc* 2019, *102*, 1832-1842.

11. Sanjay Kumar Saroj, Pooja Rawat, Mohini Gupta, G.Vijaya Prakash, Rajamani Nagarajan, Double perovskite K_3InF_6 as upconversion phosphor and its structural transformation by rubidium substitution. *Eur. J. Inorg. Chem.* 2018 4826-4833.

12. Jyoti Pandey, Vipul Shrivastava, Rajamani Nagarajan, Meta Stable $Bi_2Zr_2O_7$ With Pyrochlore Like structure: Stabilization, Oxygen Ion Conductivity And Catalytic Properties. *Inorg.Chem*. 2018 *57*, 13667−13678.

13. Pankaj Gupta, Manish Kumar, Rajamani Nagarajan, Interplay between Defects and Cation Nonstoichiometry in Lithium-Substituted $CdGa_2O_4$ Leading to Multifunctional Behavior. *J. Phys. Chem. C* 2018, *122*, 22094−22105.

14. Sanjay Kumar Saroj, Rajamani Nagarajan, Ferromagnetic Rb_2CoF_6 obtained from a single source precursor. *Inorg. Chem.Commun* 2018, *97*, 14–17.

15. Vikash Kumar Tripathi, Rajamani Nagarajan, Critical role of annealing atmosphere on solid solution formation between $PrO_{2-\delta}$ and ThO_2. *Solid State Sci*, 2018, *84*, 1-7.

16. Sanjay Kumar Saroj, Poonam Singh, Rajamani Nagarajan, Perovskite ($ACuF_3$) to double perovskite (A_3CuF_6) (A = K, Rb) transformation by a simple shaking procedure with hydrogen peroxide. *Solid State Sci*, 2018, *83*, 137-142.

17. Meenakshi Pokhriyal, Promila Kumari, Sitharaman Uma, Rajamani Nagarajan, Evaluation of solid solution formation between ThO_2 and δ-Bi_2O_3 by molecular precursor route. *Mater.Res.Bull,* 2018, *107*, 66-73.

18. Jyoti Pandey, Aanchal Sethi, Sitharaman Uma, Rajamani Nagarajan, Catalytic application of oxygen vacancies induced by Bi^{3+} incorporation in fluorite structured ThO_2 samples obtained by solution combustion synthesis. *ACS Omega* 2018, *3*, 7171-7181.

19. Sanjay Kumar Saroj, Rajamani Nagarajan, Site preference for luminescent activator ions in doped fluoroperovskite $RbZnF_3$. *Spectrochimica Acta Part A*, 2018, *201*, 339-345.

20. Promila Kumari, Meenakshi Pokhriyal, Sitharaman Uma, Rajamani Nagarajan, Efficient use of a polyamine carboxylate ligand to probe the extent of incorporation of stereochemically active Bi^{3+} in ThO_2. *Chemistry Select*, 2018, *3*, 5005– 5012.

21. Pooja Rawat, Rajamani Nagarajan, Mechano-chemical synthesis K_2MF_6 (M = Mn, Ni) by cation-exchange reaction at room temperature. *Solid State Sciences*, 2018, *76*, 33-37.

22. Pankaj Gupta, Rajamani Nagarajan, Fine tuning bifunctional properties of $Y_{0.5}Gd_{0.5}BO_3$ by doping with Ce^{3+} and co-doping with Li^+,Ca^{2+} and Al^{3+} following an epoxide mediated gel approach. *Materials Today Chemistry*, 2018,*7*, 15-24.

23. Pooja Rawat, Shalu, Rajamani Nagarajan, Mechanochemical transformation of ZnO_2 to highly defective ZnO. *Mater.Lett,* 2018, *212*, 178-181.

24. Pinki Chakraborty, Aman Kothari, Rajamani Nagarajan, Highly Ordered polyaniline as an efficient dye remover. *Adsorption Science & Technology*, 2018, *36* 429-440.

Conference Organization/ Presentations (Last three years)

1. Outcome of Stabilizing β-polymorph of Bi_2O_3: Cation Doped versus cation-anion co doping, Promila Kumari, Jyoti Pandey and Rajamani Nagarajan*, International Conference on Advanced Materials for Energy Science and Technology, Department of Energy and Engineering North-Eastern Hill Shillong, Meghalaya, India, February 26–28, 2019.

2. Upconversion phosphorescence from rare-earth doped K_3InF_6, Sanjay Kumar Saroj and R. Nagarajan, International Conference on Nanotechnology, Renewable Materials Engineering and Environmental Engineering, Dehradun, Oct 2018.

3. Catalytic application of oxygen vacancies induced by Bi^{3+} incorporation in ThO_2 samples obtained by solution combustion synthesis, J. Pandey, A. Sethi, S. Uma and R. Nagarajan, 7th Interdisciplinary Symposium on Material chemistry, BARC

Mumbai and Society for Materials Chemistry, Mumbai, Dec 2018.
4. Optical property evaluation of thoria doped with heavier rare earth oxides $LnO_{1.5}$ (Ln = Er^{3+}, Ho^{3+}, Tm^{3+}, Yb^{3+}), M. Kumar, M. Pokhriyal, S. Uma and R. Nagarajan, 7th Interdisciplinary Symposium on Material chemistry, BARC Mumbai and Society for Materials Chemistry, Mumbai, Dec 2018.
5. Meta Stable $Bi_2Zr_2O_7$ with pyrochlore like structure: stabilization, oxygen ion conductivity and catalytic properties, V. Shrivastava, J. Pandey and R. Nagarajan, 7th Interdisciplinary Symposium on Material chemistry, BARC Mumbai and Society for Materials Chemistry, Mumbai, Dec 2018.
6. Catalytic applications of mesoporous $CaBi_2O_4$ obtained from a single source precursor, Shalu, V. Malik, R. Nagarajan and S. Uma, 7th Interdisciplinary Symposium on Material chemistry, BARC Mumbai and Society for Materials Chemistry, Mumbai, Dec 2018.
7. Luminescence in Eu^{3+} and Tb^{3+} doped $Th_{0.50}Bi_{0.5}O_{2-\delta}$ samples obtained by solution combustion route, A. Sethi, J. Pandey, S. Uma and R. Nagarajan, 7th Interdisciplinary Symposium on Material chemistry, BARC Mumbai and Society for Materials Chemistry, Mumbai, Dec 2018.
8. Fine tuning bifunctional properties of $Y_{0.5}Gd_{0.5}BO_3$ by doping with Ce^{3+} and co-doping with Li^+, Ca^{2+} and Al^{3+} following an epoxide mediated gel approach, Pankaj Gupta and Rajamani Nagarajan, Advances in Analytical Sciences, ICAAS-2018, CSIR-Indian Institute of Petroleum-Dehradun, Uttarakhand, March 15-17 (2018). *Best poster award.*
9. Mechanochemical transformation of ZnO_2 to highly defective ZnO, Shalu, Pooja Rawat, Sitharaman Uma and Rajamani Nagarajan, Advances in Analytical Sciences, ICAAS-2018, CSIR-Indian Institute of Petroleum-Dehradun, Uttarakhand, March 15-17 (2018).
10. Emergence of defect fluorite structure in nano-sized thoria doping with some divalent transition-metal ions, Manish Kumar, Vikash Kumar Tripathi and Rajamani Nagarajan, Advances in Analytical Sciences, ICAAS-2018, CSIR-Indian Institute of Petroleum-Dehradun, Uttarakhand, March 15-17 (2018).
11. Enhancement of thermal property of PMMA through composite formation with LDH, P. Chakraborty, R. Nagarajan, International Conference on Materials Science & Technology (ICMTech) University of Delhi, India 2016.
12. Manganese containing ternary copper sulfides synthesis by thermolysis method in Ethylene Glycol, P. Gupta, M. Gusain and R. Nagarajan, International Conference on Materials Science & Technology (ICMTech) University of Delhi, India 2016.
13. Stabilization of oxyfluorides containing Co in IV by hyper halogens, P. Singh and R. Nagarajan, International Conference on Materials Science & Technology (ICMTech) University of Delhi, India 2016.
14. Luminescent layered materials, S. K. Saroj and R. Nagarajan, International Conference on Materials Science & Technology (ICMTech) University of Delhi, India 2016.
15. Rapid synthesis of mesoporous nano-sized $MgCr_2O_4$ and its catalytic properties, V. K. Tripathi, R. Nagarajan, International Conference on Materials Science & Technology (ICMTech) University of Delhi, India 2016.
16. Synthesis of M(OH)F and its use as a single source precursor for the generation of F-doped MO [M- Zn, Cd], P. Rawat and R. Nagarajan, 18th Chemical research society of India (CRSI National symposium in chemistry), Chandigarh, Punjab University, India 2016.
17. Topochemical oxidation of perovskite $KCoF_3$ to K_2PtCl_6 structure type oxyfluorides, P. Singh and R. Nagarajan, 18th Chemical research society of India (CRSI National symposium in chemistry), Chandigarh, Panjab University, India 2016.

Research Projects (Major Grants/Research Collaboration)

- **Department of Science and Technology (Govt of India) funded project with no EMR/2016/006131**

Awards and Distinctions

K.P. Abraham Gold Medal and cash award for the Best Thesis in Materials Chemistry, Indian Institute of Science, Bangalore, India.

Association With Professional Bodies

1. Member of the American Chemical Society
2.Material Research Society of India
3. Society for Material Chemists
4. Member of American Nano Society

Signature of Faculty Member Signature of HOD