




## University Faculty Details Page on DU Web-site

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Title	<b>Professor</b>	First Name	<b>Sitharaman</b>	Last Name	<b>Uma</b>	Photograph
Designation		<b>Professor</b>				
Department		<b>Chemistry</b>				
Address (Campus)		<b>Department of Chemistry University of Delhi Delhi 110 007</b>				
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Email		<b>suma@chemistry.du.ac.in</b>				
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Education						
Subject	Institution		Year	Details		
<b>Ph. D in Solid State Chemistry</b>	<b>Indian Institute of Science, Bangalore</b>		<b>1995</b>			
Career Profile						
Organization / Institution		Designation	Duration	Role		
<b>Kansas State University, USA</b>		<b>Research Associate</b>	<b>2001-2005</b>	<b>Research</b>		
<b>Oregon State University, USA</b>		<b>Research Associate</b>	<b>1999-2001</b>	<b>Research</b>		
<b>Iowa State University, USA</b>		<b>Research Associate</b>	<b>1996-1998</b>	<b>Research</b>		
<b>Indian Institute of Science, Bangalore</b>		<b>Research Associate</b>	<b>1995-1996</b>	<b>Research</b>		
Research Interests / Specialization						
Solid State Chemistry / Synthesis of new materials by exploratory approach, alternate synthetic methods to stabilize metastable solids, crystal structure evaluation by careful single crystal combined with powder XRD measurements, structure-property relationship, materials for electrodes, solid electrolytes, study of magnetic frustration, and development of catalysts and photocatalysts for environmental remediation.						
Teaching Experience ( Subjects/Courses Taught)						
Inorganic and Solid State Chemistry						
<b>Courses taken for M.Sc Chemistry</b>						
1. Supra-molecular and photo-inorganic chemistry 2. Chemistry of d and f block Elements 3. Inorganic Materials 4. Bio Inorganic Chemistry and Catalysis 5. Chemistry of boron and silicon compounds.						
<b>Courses taken for M.Tech</b>						
1. Solid State Chemistry for M.Tech in NanoScience and Nanotechnology						
<b>Courses taken for Ph. D</b>						
1. Advanced Materials Chemistry						
Honors & Awards						
K.P. Abraham Gold Medal and cash award for the Best Thesis in Materials Chemistry, 1995-1996, Indian Institute of Science, Bangalore, India.						
Awarded Maya Devi Juneja Gold Medal in the ISCA-2015 for contribution in the area of Solid State Chemistry and Allied Areas						
Publications (LAST FIVE YEARS)						

<b>Year of Publication</b>	<b>Title</b>	<b>Publisher</b>	<b>Co-Author</b>
In Indexed/ Peer Reviewed Journals			
<b>Year of Publication</b>	<b>Title</b>	<b>Journal</b>	<b>Co-Author</b>
2019	New Series of Honeycomb Ordered Oxides, Na <sub>3</sub> M <sub>2</sub> SbO <sub>6</sub> (M (II) = Mn, Fe, (Mn, Fe), (Mn, Co)), Synthesis, Structure and Magnetic Properties	Dalton Trans., 2019, <b>48</b> , 8955-8965.	D. K, Yadav, A. Sethi, S. Atri.
2019	Transformation of scheelite M <sub>2</sub> MoTiO <sub>8</sub> (M = Eu, Gd, Dy, Y) and zircon MVO <sub>4</sub> (M = Ce, Sm, Gd, Dy) oxides to fluorite oxynitrides and perovskite oxides under mild ammonolysis conditions.	Solid State Sci., 2019, <b>89</b> , 114–120.	V. Malik , N. Bhardwaj.
2019	Catalytic applications of mesoporous CaBi <sub>2</sub> O <sub>4</sub> obtained from a single source precursor.	Res Chem Intermediat., 2019, <b>45</b> , 2457-2470.	Shalu, V. Malik and R. Nagarajan.
2018	Optical property evaluation of thoria doped with heavier rare-earth oxides LnO <sub>1.5</sub> (Ln = Er <sup>3+</sup> , Ho <sup>3+</sup> , Tm <sup>3+</sup> , and Yb <sup>3+</sup> ).	J Am Ceram Soc., 2018, <b>102</b> , 1832-1842.	M. Kumar, M. Pokhriyal, M. Gupta, G. V. Prakash, and R. Nagarajan.
2018	Effective catalytic reduction of aromatic nitrocompounds using mineral beyerite, CaBi <sub>2</sub> O <sub>2</sub> (CO <sub>3</sub> ) <sub>2</sub> .	J. Environ. Chem. Eng., 2018, <b>6</b> , 4755-4763.	V. Malik
2018	Correlating oxide ion conductivity with ionic size of dopant and defect structures in ThO <sub>2</sub> -LnO <sub>1.5</sub> (Ln = Y, La and Gd) prepared by modified epoxide gel method.	Solid State Ion, 2019, <b>329</b> , 67-73.	M. Pokhriyal, M. Sharma, V. K. Tripathi, S. Murugavel, and R. Nagarajan.
2018	Catalytic application of oxygen vacancies induced by Bi <sup>3+</sup> incorporation in ThO <sub>2</sub> samples obtained by solution combustion synthesis.	ACS Omega, 2018, <b>3</b> , 7171-7181.	J. Pandey, A. Sethi and R. Nagarajan.
2018	Evaluation of solid solution formation between ThO <sub>2</sub> and δ-Bi <sub>2</sub> O <sub>3</sub> by molecular precursor route.	Mat. Res. Bull., 2018, <b>107</b> , 66-73.	M. Pokhriyal, P.Kumari and R. Nagarajan.
2018	Efficient use of a polyamine carboxylate ligand to probe the extent of incorporation of stereochemically active Bi <sup>3+</sup> in ThO <sub>2</sub> .	Chem Select, 2018, <b>3</b> , 5005-5012.	P. Kumari, M. Pokhriyal and R. Nagarajan.

2017	Synthesis, characterization of new Bi <sup>3+</sup> containing apatites: Formation of red emitting phosphors by Eu <sup>3+</sup> incorporation	J. Solid State Chem., 2017, <b>254</b> , 138-143.	M. Pokhriyal and A. Gupta.
2017	Luminescence properties of Tb <sup>3+</sup> and Eu <sup>3+</sup> doped beyerite CaBi <sub>2</sub> O <sub>2</sub> (CO <sub>3</sub> ) <sub>2</sub>	Mat. Res. Bull., 2017, <b>95</b> , 361-366.	M. Pokhriyal
2017	Chapter on complex layered oxides	(Vol. 1, Materials and Structure of Solids), Handbook of Solid State Chemistry Wiley.	Nil
2017	Facile synthesis and characterization of acetate intercalated Co-La layered double hydroxide	J. Rare Earths, <b>35</b> , 474-479.	M. Pokhriyal and R. Nagarajan
2016	Single step hydrothermal synthesis of beyerite, CaBi <sub>2</sub> O <sub>2</sub> (CO <sub>3</sub> ) <sub>2</sub> for the fabrication of UV-visible light photocatalyst BiOI/CaBi <sub>2</sub> O <sub>2</sub> (CO <sub>3</sub> ) <sub>2</sub>	RSC Advances, 2016, <b>6</b> , 38252-38262.	V. Malik and M. Pokhriyal
2016	High lithium ion containing oxides Li <sub>4.5</sub> M <sub>0.5</sub> TeO <sub>6</sub> (M(III) = Cr, Mn, Al, Ga) belonging to rocksalt superstructure type	Mat. Res. Bull., 2016, <b>76</b> , 118-123.	A. Gupta
2015	Synthesis of zincblende CuInS <sub>2</sub> and Fe-substituted CuInS <sub>2</sub> by the reaction of binary colloids	Colloids and Surfaces A: Physicochemical Engineering Aspects, 2015, <b>481</b> , 269-275.	M. Gusain, P. Kumar, and R. Nagarajan
2015	Synthesis and crystal structure of Bi <sub>6</sub> (Bi <sub>0.5</sub> Cu <sub>0.5</sub> )V <sub>2</sub> O <sub>15+y</sub>	J. Solid State Chem., 2015, <b>230</b> , 369-373.	A. Gupta
2014	Interesting cationic (Li <sup>+</sup> /Fe <sup>3+</sup> /Te <sup>6+</sup> ) variations in new rocksalt ordered structures	J. Chem. Sci., <b>127</b> , 225-233.	A. Gupta
2014	Evidence of cationic mixing and ordering in the honeycomb layer of Li <sub>4</sub> MSbO <sub>6</sub> (M (III) = Cr, Mn, Al, Ga) (S.G. C2/c) oxides	Dalton Trans., 2014, <b>43</b> , 12050-12057.	N. Bhardwaj, and A. Gupta.

## Articles

Nil

## Conference Presentations

1. Solid State Chemistry: Basic Concepts to Endless Prospects, **S. Uma** (Invited talk) One day workshop on Inorganic Solid State Chemistry, Department of Chemistry, University of Bangalore. February 2019.
2. Exploration and Identification of new solid state structures aided by single crystal X-ray diffraction, **Sitharaman Uma** (Invited talk), First south east Asia conference on crystal engineering (SEACCE), University of Jayewardenepura, Colombo, Srilanka, September 2016.
3. Synthesis and Characterization of Solid State Materials: Potential Solid Electrolytes, and Electrodes, Talk presented in 99<sup>th</sup> Canadian Chemistry Conference and Exhibition, June 06, 2016, Halifax, Canada.
4. Investigation of catalytic and photocatalytic applications of  $\text{CaBi}_2\text{O}_2(\text{CO}_3)_2$  and  $\text{BiOI}/\text{CaBi}_2\text{O}_2(\text{CO}_3)_2$ , Vidhu Malik, Meenakshi Pokhriyal and Sitharaman Uma, Poster presented in International Conference on Materials Science & Technology (ICMTech-2016), March 1-4, 2016, University of Delhi
5. Investiagtion of  $\text{BiOI}/\text{CaBi}_2\text{O}_2(\text{CO}_3)_2$  composite for potential photocatalytic applications, Vidhu Malik, Meenakshi Pokhriyal and Sitharaman Uma, Poster presented in Chemical research society of India (CRSI-2016), February 5-7, 2016, Punjab University, Chandigarh
6. Synthesis and Characterization of  $\text{BiOI}/\text{CaBi}_2\text{O}_2(\text{CO}_3)_2$  composite as photocatalyst utilizing UV/visible light irradiation, Vidhu Malik, Meenakshi Pokhriyal and Sitharaman Uma, Poster presented on 9<sup>th</sup> National Conference on Solid State Chemistry and Allied Areas, ISCAS-2015, May 8-10, 2015, University of Delhi
7. Investigations of the various cationic distributions in new lithium based rocksalt ordered structures, Invited talk in 9<sup>th</sup> National Conference on Solid State Chemistry and Allied Areas, ISCAS-2015, May 8-10, 2015, University of Delhi
8. Synthesis and structural characterization of new phosphosilicate apatites and investigation of photoluminescence by  $\text{Eu}^{3+}$  doping, Akanksha Gupta, Meenakshi Pokhriyal and Sitharaman Uma, Poster presented in the 5<sup>th</sup> DAE-BRNS International Symposium on Materials Chemistry, December 09-13, 2014, Mumbai, India
9. Precursor driven one pot synthesis of Wurtzite and Chalcopyrite  $\text{CuFeS}_2$ , Prashant Kumar, Sitharaman Uma, Rajamani Nagarajan, Poster presented in International Union of Materials Research Societies–International Conference in Asia 2012 (IUMRS-ICA 2013), December 16 – 20, 2013, Indian Institute of Science, Bangalore, INDIA
10. Lithium Containing Layered Mixed Metal Oxides With Honeycomb Ordered Structures, Akanksha Gupta, Neha Bhardwaj, Vinod Kumar and Sitharaman Uma, Poster presented in MTIC-XV, December 13-16, 2013, IIT Roorkee,
11. Interesting Cationic ( $\text{Li}^+/\text{Fe}^{3+}/\text{Te}^{6+}$ ) variations in new rocksalt ordered structures, S. Uma, Short Invited Lecture in MTIC-XV, December 13-16, 2013, IIT Roorkee
12. A simple unconventional approach for composition control in copper-iron-sulfur system, Prashant Kumar, Sitharaman Uma, and Rajamani Nagarajan, Poster presented in IUMRS-ICA 2012, Busan, S. Korea.
13. Novel Lithium Containing Mixed Metal Oxides Honeycomb Structures, Neha Bhardwaj, Vinod Kumar, Vaishali Thakral and S. Uma, 4<sup>th</sup> DAE-BRNS International Symposium on Materials Chemistry, December 11-15, 2012, Mumbai, India
14. Ion exchange synthesis and characterization of new pyrochlore copper(1) antimony oxide, Jyoti Singh and **S. Uma**, Poster Presented at International Conference on Materials for Advanced Technologies, Suntec, Singapore (June 2011).
15. Optical and photocatalytic properties of heavily doped  $\text{SnO}_2$  nanocrystals by a novel single source precursor approach, Vinod Kumar, **S. Uma**, R. Nagarajan, Presented at International Conference on Materials for Advanced Technologies, Suntec, Singapore

(June 2011).
16. Investigation of the synthesis, structure and photocatalytic applications of anion incorporated layered oxides, Vaishali Thakral, Vinod Kumar, <b>S. Uma</b> , Poster Presented at International Symposium on Materials Chemistry 2010, Bhabha Atomic Research Centre, Mumbai (December 2010)).
. Synthesis and Investigation of Structural and Photocatalytic Properties of Mixed Metal Oxides, S. Uma, Jyoti Singh, Mamta harkwal, and Vaishali Thakral, Poster Presented in 2 <sup>nd</sup> DAE-BRNS International Symposium on Materials Chemistry, December 2-2008, Mumbai, India
<b>Total Publication Profile optional</b>
<u>Books</u> Nil
<u>In Indexed/ Peer Reviewed Journals</u>
<u>Articles</u> Nil
<b>Public Service / University Service / Consulting Activity</b> Nil
<b>Professional Societies Memberships</b> Editorial Board Member, Scientific Reports Member in Materials Research Society of India, and Society for Materials Chemistry, India
<b>Projects (Major Grants / Collaborations)</b> DST funded project titled, Exploratory Synthetic Investigation to Recognize Novel Solid Oxide Materials with an Emphasis on Layered Structures
<b>Other Details</b>

(Signature of Faculty Member)

(Signature & Stamp  
of Head of the Department)