




Faculty Details proforma for DU Web-site

Title	Dr.	First Name	M	Last Name	Thirumal	Photograph
Designation		Professor				
Address		No. 209, Multistoreyed Building Department of chemistry University of Delhi Delhi				
Phone No	Office	91 -011-27666646-176				
Residence	Mobile	9810096976				
Email	Web-Page	mthirumal@chemistry.du.ac.in				
Educational Qualifications						
Degree		Institution			Year	
Ph.D.		IIT Delhi			2001	
M.Tech.		IIT Delhi			1995	
PG		Madras University			1992	
UG		Madras University			1990	
Career Profile						
Professor		Delhi University			2013 -till date	
Reader/ Associate Professor		Delhi University			2007- 2013	
Post –doc		University of Pennsylvania			2001- 2006	
Scientist		IIT Delhi			February 2001- August 2001	
Administrative Assignments						
Deputy Superintendent M.Sc Practical examinations I and III Semester 2016						
Secretary, Staff council 2012- 2015						
Deputy Superintendent M.Sc examinations I and III Semester 2013						
Convener, Physical chemistry section 2008-2009						
Member of various committees in the Chemistry department						
Areas of Interest / Specialization						
Microwave Dielectrics, Multiferroics, Solid Oxide Fuel cells, Non Lead based ferroelectric and Piezoelectric materials, Phosphors, and Nanomaterials						

Subjects Taught
<p>Irreversible Thermodynamics, Transport phenomena, Surface phenomena, Fast reactions</p> <p>Molecular structure: Spectroscopic and diffraction Methods Masters students III semester</p> <p>Analytical Techniques for Material Characterization - Research Scholars</p> <p>Physical chemistry experiments Master students I and II semester</p> <p>Teaching Assistant in IIT Delhi for Masters and B.Tech students</p>
Research Guidance
<p>Supervision of awarded Doctoral Thesis:</p> <p>Ram Jeewan Yadav: Complex Oxides for Dielectric Resonator Applications</p> <p>Jyoti Tanwar: Synthesis and characterization of novel ligands for targeted molecular imaging</p> <p>Swetha Sharma: Design and synthesis of Pyrazines, Imidazolones, Chromones and their Anticancer and Transacetylase Activities</p> <p>Ms. Ritu Payal – Photophysical Investigations of some Biologically Active Thymol Based Schiff Bases using Absorption and Fluorescence Spectral Studies in Homogeneous and Heterogeneous Media (jointly with Professor R.C. Rastogi)</p> <p>Mr. K Ganesh Kadiyala – Smart multimodal agents for Targeted – Molecular Imaging (jointly with Dr. Anupama Datta INMAS)</p> <p>Supervision of Doctoral Thesis, Under Progress:</p> <p>Ms. Yogita Bisht: Microwave Dielectrics: Understanding the reproducibility issues in complex oxides</p> <p>Ms. Richa Tomar: Synthesis and Characterization of new oxides for magnetic and electrical properties</p> <p>Ms. Devla – Anti-Tubercular & Anti-Leishmanial activity of some synthetic & Natural compounds</p> <p>Mr. Sandeep Kumar – Core/Shell Heterostructures: Synthesis, Characterization and their</p>

photocatalytic Applications (Jointly with Professor A. K. Ganguli IIT Delhi)

Mr. Ajay Pratap Singh: Nanomaterials: Transition Metal Nano oxides

Ms. Nibedita - (Jointly with Professor A. K. Ganguli IIT Delhi)

Ms. Sachi

Publications Profile

1. Research papers published in Refereed/Peer Reviewed Journals

- Visible-Light-Driven Photoelectrochemical and Photocatalytic performance of $\text{NaNbO}_3/\text{Ag}_2\text{S}$ core-shell Heterostructures Kumar, Sandeep; Singh, Aadesh P; Bera, Chandan; Thirumal, Meganathan; Mehta, B.R; Ganguli, Ashok K ChemSusChem (2016) DOI:10.1002/cssc.201600397.
- Monoclinically distorted perovskites, A_2ZnTiO_6 (A=Pr, Gd): Rietveld refinement, and dielectric studies Nibedita Das, Masood A. Nath, M.Thirumal, A.K.Ganguli. J. Solid State Chem., 229, 97 (2015).
- Picolinic acid based acyclic bifunctional chelating agent and its methionine conjugate as potential SPECT imaging agents: syntheses and preclinical evaluation Kadiyala, K. Ganesh; Tyagi, Tulika; Kakkar, Dipti; Chadha, Nidhi; Chuttani, Krishna; Roy, Bal Gangadhar; Thirumal, Meganathan; Mishra, Anil K.; Datta, Anupama RSC Advances 5(43), 33963 (2015) .
- Metal Based Imaging Probes of DO3A-Act-Met for LATI Mediated Methionine specific Tumors: Synthesis and Preclinical Evaluation K.Ganesh Kadiyala, anupama Datta, Jyoti Tanwar, Anupriya Adhikari, B.S.Hemanth Kumar, Krishna Chuttani, Meganathan Thirumal, Anil K.Mishra Pharm. Res. 32, 955, (2015).
- Achieving Enhanced visible-light driven photocatalysis using type-II $\text{NaNbO}_3/\text{CdS}$

- core /Shell heterostructures, Sandeep Kumar, Sunita Khanchandani, Meganathan Thirumal, Ashok. K.Ganguli *Appl. Mater. Interfaces* 6(15)13221, (2014).
- Design and synthesis of calcium responsive magnetic resonance imaging agent: Its relaxation and luminescence studies Jyoti Tiwari, Anupama Datta, Kanchan Chauhan, S.Senthil Kumaran, Anjani K.Tiwari, K.Ganesh Kadiyala, Sunil Pal, M.Thirumal, Anil K.Mishra *European Journal of Medicinal Chemistry* 82, 225, (2014).
 - Synthesis of functionalized furopyrazines as restricted dipeptidomimetics S. Claerhout, S.Sharma, C.Skold,C.Cavaluzzo,A.Sandstrom, M.Larhed, M.Thirumal, V.S.Parmar, E.V. Van der Eycken *Tetrahedron* 68(14), 3019, (2012).
 - Tunable high Q perovskite dielectrics in the BaO-NiO-Ta₂O₅ system. Thirumal, Meganathan; Davies, Peter K. *Journal of Materials Science* 46(13), 4715, (2011).
 - Tetrasubstituted 2-Imidazolones via Ag(I)-Catalyzed Cycloisomerization of Propargylic Ureas Vaibhav P. Mehta, Ajendra kumar Sharma, Sachin G. Modha, Sweta Sharma, Thirumal Meganathan, Virinder Singh Parmar, and Erik Van der Eycken *J. Org. Chem.* 76(14) 5867(2011).
 - Facile synthesis of non-ionic dimeric molecular resonance imaging contrast agent: its relaxation and luminescence studies Tanwar, Jyoti; Datta, Anupama; Tiwari, Anjani K.; Chaturvedi, Shubhra; Ojha, Himanshu; Allard, Michele; Chaudary, N. K.; Thirumal, M.; Mishra, Anil K. *Dalton Transactions* 40(13), 3346. (2011).
 - Preclinical Evaluation of DO3P-AME-DO3P: A Polyazamacrocyclic Methylene Phosphonate for Diagnosis and Therapy of Skeletal Metastases. Tanwar, Jyoti; Datta, Anupama; Tiwari, Anjani Kumar; Thirumal, Meganathan; Chuttani, Krishna; Mishra, Anil Kumar *Bioconjugate Chemistry* 22(2), 244 (2011).
 - N-Heterocyclic Carbene Catalyzed Aroylation of 3,5-Dichloro-2(1H)-pyrazinones

- Vaibhav P. Mehta, Ajendra kumar Sharma, Sachin G. Modha, Sweta Sharma,, Thirumal Meganathan, Virinder Singh Parmar, and Erik Van der Eycken, *J. Org. Chem.* **76**(8) 2920 (2011).
- Ternary Niobates and Tantalates: Materials for microwave Dielectrics Masood A Nath, M. Thirumal, Vishnu Shanker and A. K Ganguli *Society for Materials chemistry Bulletin*, **1**(1) (2010).
 - A new form of MgTa_2O_6 obtained by the molten salt method A. K. Ganguli, S. Nangia, M. Thirumal and P. L. Gai, *J.Chem.Sci.*, **118**(1), 37 (2006).
 - $\text{Ba}_8\text{ZnTa}_6\text{O}_{24}$: A new high Q dielectric Perovskite M.Thirumal, and P. K. Davies *J. Am. Ceram. Soc.*, **88**(8), 2126 (2005).
 - Communicating with Wireless perovskites: cation order and Zinc volatilization P. K. Davies, A. Borisevich and M. Thirumal *J. Eur. Ceram. Soc.*, **23**, 2461 (2003).
 - Studies on dielectric oxide materials containing niobium and tantalum M. Thirumal, and A. K. Ganguli, *Progress in Crystal Growth and Characterization of Materials*, **44** (3), 147(2002).
 - $\text{Ba}_3\text{ZnTa}_{2-x}\text{Nb}_x\text{O}_9$ and $\text{Ba}_3\text{MgTa}_{2-x}\text{Nb}_x\text{O}_9$ ($0 \leq x \leq 1$): synthesis, structure and dielectric properties M. Thirumal, I. N. Jawahar, K. P. Surendiran, P. Mohanan and A. K. Ganguli, *Mater. Res. Bull.*, **37**(14), 2321 (2002).
 - Synthesis and dielectric properties of $\text{Ba}_3\text{ZnNb}_2\text{O}_9$ and $\text{Sr}_3\text{ZnNb}_2\text{O}_9$ solid solution, M. Thirumal, and A. K. Ganguli, *Bull. Mater. Sci.*, **25**, 259 (2002).
 - Synthesis and microwave dielectric properties of $\text{Sr}_3\text{Zn}_{1-x}\text{Mg}_x\text{Nb}_2\text{O}_9$ Phases, M. Thirumal, I. N. Jawahar, K. P. Surendiran, P. Mohanan and A. K. Ganguli, *Mater. Res. Bull.*, **37**(1), 185 (2002).
 - Phase analysis and dielectric properties of oxides obtained in the $\text{MgO} - (1-x)\text{Nb}_2\text{O}_5 - (x)\text{Ta}_2\text{O}_5$ system, M. Thirumal and A. K. Ganguli, *Proceedings Indian Academy of*

Sciences, Chemical Sciences **113**(5-6), 603 (2001).

- Synthesis and dielectric properties of magnesium niobate-magnesium tantalate solid solutions, M. Thirumal and A. K. Ganguli, Mater. Res. Bull., **36**(13-14), 2421(2001).
- New double perovskites having low dielectric loss: LaBaZnTaO₆, LaSrZnNbO₆ and Ba₂Zn_{0.5}Ti_{0.5}TaO₆, A. K. Ganguli, V. Grover and M. Thirumal, Mater. Res. Bull., **36**(11), 1967 (2001).
- Molten salt synthesis of complex perovskite – related dielectric oxides, M. Thirumal, P. Jain and A. K. Ganguli, Mater. Chem. and Phys., **70**,7 (2001)
- Ba₃ZnTa_{2-x}Nb_xO₉ and Ba₃MgTa_{2x}Nb_xO₉: Synthesis, Structural and Dielectric Studies, M. Thirumal, G. SenthilMurugan, K. B. R. Varma and A. K. Ganguli, Mater. Res. Bull., **35**, 2423 (2000).
- Influence of Strontium on the cubic to ordered hexagonal phase transformation in Barium Magnesium Niobate, M. Thirumal and A. K. Ganguli, Bull. Mater. Sci., **23**, 495 (2000).
- Phase analysis and dielectric properties of ceramics in the PbO-MgO-ZnO-Nb₂O₅ System: a comparative study of materials obtained by the ceramic and molten salt synthesis routes, M. Thirumal and A. K. Ganguli, Bull. Mater. Sci., **23**, 101 (2000).

Conference Organization/ Presentations (in the last three years)

- Microwave dielectrics: Understanding the complexities in Perovskites M.Thirumal, Yogita Bisht and Richa Tomar- International Conference on Materials Science & Technology (March 01-March 04,2016)University of Delhi, INDIA.
- Microwave dielectrics: Understanding the complexities in Perovskites, M.Thirumal, Yogita Bisht and Richa Tomar- 18th CRSI National symposium in Chemistry (February 05-February 07, 2016, Punjab University,Chandigarh, INDIA.
- Microwave dielectrics: Understanding the complexities in Perovskites M.Thirumal- International Conference on Multifunctional Materials for Future Applications (Oct 27-

20, 2015) IIT(BHU), Varanasi INDIA.

- Microwave Dielectrics: The solid solution and composites of $(1-x)\text{Ba}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3 - (x)\text{Ba}(\text{Mg}_{1/8}\text{Nb}_{3/4})\text{O}_3$ Yogita Bisht and M.Thirumal -9th National Conference on Solid State Chemistry and Allied Areas (ISCAS-2015) Bhaskaracharya College of Applied Sciences, (May 8-10, 2015) University of Delhi, INDIA.
- Preparation and Dielectric Properties of $(1-x)\text{Ba}_3\text{NiTa}_2\text{O}_9 - (x)\text{Ba}_8\text{NiTa}_6\text{O}_{24}$: Comparative Study by Solid State and One Pot Metathesis” Richa Tomar and M.Thirumal -International workshop on Science, Environment and Education (IWOSSE-2015), (April 18, 2015) Pokhara, NEPAL.
- Synthesis characterization and dielectric properties of $(1-x)\text{Ba}(\text{Mg}_{1/3}\text{Ta}_{2/3})\text{O}_3 - (x)\text{Ba}(\text{Mg}_{1/8}\text{Ta}_{3/4})\text{O}_3$ Yogita Bisht and M.Thirumal -International workshop on Science, Environment and Education (IWOSSE-2015), (April 18, 2015) Pokhara, NEPAL.
- Influence of processing conditions on the dielectric properties of $\text{Ba}(\text{Zn}_{1/3}\text{Ta}_{2/3})\text{O}_3(\text{BZT})$ Ajay Pratap singh, Ram Jeewan Yadav, and M.Thirumal -International workshop on Science, Environment and Education (IWOSSE-2015), (April 18, 2015) Pokhara, NEPAL.
- Preparation and dielectric properties of $(1-x)\text{Ba}_3\text{NiTa}_2\text{O}_9 - (x)\text{Ba}_8\text{NiTa}_6\text{O}_{24}$: Comparative study by Solid State method and One Pot Method. Richa Tomar and M.Thirumal – 6th National Symposium for Materials Research Scholars 12-14,2014 IIT Bombay, INDIA
- Synthesis, characterization and dielectric properties of $(1-x)\text{Ba}(\text{Mg}_{1/3}\text{Ta}_{2/3})\text{O}_3 - (x)\text{Ba}(\text{Mg}_{1/8}\text{Ta}_{3/4})\text{O}_3$ Yogita Bisht and M.Thirumal – 6th National Symposium for Materials Research Scholars 12-14,2014 IIT Bombay, INDIA
- Structure and dielectric properties of $(1-x)\text{Ba}_3\text{NiTa}_2\text{O}_9 - (x)\text{Ba}_8\text{NiTa}_6\text{O}_{24}$ ceramics Richa

<p>Tomar and M.Thirumal – ISCAS 2013. jammu , INDIA</p> <ul style="list-style-type: none"> • Synthesis characterization and dielectric properties of $Ba_8MgTa_6O_{24}$ Yogita Bisht and M.Thirumal - ISCAS 2013. jammu , INDIA
<p>Research Projects (Major Grants/Research Collaboration)</p> <ul style="list-style-type: none"> • DU-DST • DU
<p>Awards and Distinctions</p> <ul style="list-style-type: none"> • G.A.T.E (Graduate Aptitude Test in Engineering) 1994 • Young scientist award in the International School on Powder Diffraction by IUCr, held at Calcutta, India.1998. • Second best Poster award In the National symposium and conference of ISCAS held in Jammu.1999.
<p>Association With Professional Bodies</p> <ol style="list-style-type: none"> 1. Reviewing <ul style="list-style-type: none"> • Reviewer/ Referee for various International and National journals 2. Memberships <ul style="list-style-type: none"> Life member Indian Association of solid state chemists and allied scientists
<p>Other Activities</p> <p>Member of various committees in the chemistry department</p>