

Curriculum Vitae

Palani Sasikumar

Assistant Professor
Department of Chemistry
Presidency University
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Date of Birth: 05.06.1979

Permanent Address: 55A, Kumaran Street, Nellorepet,
Gudiyattam – 632602, Vellore district, Tamil Nadu, India.

Academic Records:

Ph.D. (July 2003 – November 2008): Indian Institute of Technology - Kanpur, Kanpur, India.

Thesis title: Synthesis and structures of metal phosphonates and phosphates

Supervisor: Prof. V. Chandrasekhar, Department of Chemistry, IIT-Kanpur

M.Phil. (July 2001 – November 2002): Pondicherry University, Pondicherry, India.

Dissertation title: Synthesis and Characterization of bi-coppercomplex of [11, 12] bi [4, 5, 9, 14]-tetraaza-Benzo[b]triphenylenyl.

Supervisor: Prof. R. Venkatesan, Pondicherry University, Pondicherry, India.

M.Sc. (July 1999 – April 2001): Ramakrishna Mission Vivekananda College affiliated to University of Madras, Chennai, India.

B.Sc. (July 1996 – April 1999): Government Thirumagal Mills College affiliated to University of Madras, Gudiyattam, India.

Fellowships and Awards:

- ❖ Junior Research Fellowship from Council of Scientific and Industrial Research (CSIR), New Delhi, India (2003-2004)
- ❖ Senior Research Fellowship, from Council of Scientific and Industrial Research (CSIR), New Delhi, India (2005-2007)
- ❖ Senior Research Fellowship, IIT-Kanpur, Kanpur, India, (2008)
- ❖ Alexander von Humboldt Fellowship, Germany, (2010)

Professional experience:

Assistant Professor. (November 2012 – present): Department of Chemistry, Presidency University, Kolkata, India.

Post-Doctoral associate. (February 2010 – July 2012): Johann Wolfgang Goethe Universität, Frankfurt am Main, Germany.

Post-Doctoral associate. (April 2009 – January 2010): The University of Alabama, Tuscaloosa, U. S. A.

Senior Research Associate. (December 2008 – March 2009): Indian Institute of Technology - Kanpur, Kanpur, India.

Research Assistant. (Jan 2003 – June 2003): Indian Institute of Technology - Kanpur, Kanpur, India.

Broad Area of Research

- ❖ Environmental Chemistry, Organometallic and Inorganic chemistry

Research Experiences:

❖ **Water Remediation Using Mixed Metal Oxides**

Currently our research group involved on design and synthesize novel mixed metal oxides using simple sol-gel method. The materialistic properties of synthesized material tuned further by pyrolysis, incorporating with other carbon based materials such as graphene oxide, Beta cyclodextrin, etc... The synthesized metal oxides are characterized well with various spectroscopic tools such as FT-IR, UV-vis, Powder XRD, BET, SEM, TEM, TGA, DTA, XRF and XPS etc... The material used as adsorbent for several pollutant in ground water such as fluoride, arsenate, and other heavy metals.

❖ **Phosphonate and Phosphate**

In my doctoral research, I have involved in the synthetic development of new phosphonic acids and phosphate ligands and the interaction of these ligands with various main group-, transition metal ions and organotin precursors. The metal aggregates thus prepared were structurally and spectroscopically characterized. These aggregates were shown to be good single molecular precursors for material purpose. Ceriumphosphonate were utilized as catalyst for prepare pharmaceutically valuable functionalized dihydropyrimidines (three-component Biginelli reaction). All the di-nuclear metal aggregates were found to be artificial nucleases.

❖ **Metal Thiolates**

In my post-doctoral research at Alabama University, I have synthesized various thiol-based ligands and the interaction of these ligands with soft-metals like Lead, Cadmium and Zinc. Among them lead aggregate were found to be semiconductor.

❖ **Organoborane**

In my current post-doctoral research I have prepared several Donor-Acceptors, Donor-Pi-Acceptors molecule by using diarylamine (Lewis base) as donor and diarylborane (Lewis acid) as acceptor. Thus prepared molecules were well characterized structurally and spectroscopically. All of them were shows interesting optoelectronic properties in both solution and solid state.

Teaching Experiences:

- ❖ Post Graduate: Course MCT-5: Chemistry of elements; special features
- ❖ Under Graduate: Course CHT-2: Chemical periodicity
- ❖ Under Graduate: Course CHP-2: Inorganic chemistry practical
- ❖ Under Graduate: Course CHT-6: Chemistry of S- and P-block elements
- ❖ Under Graduate: Course CED-5: Comparative study of P-block elements
- ❖ Under Graduate: Course CED-2: Inorganic Practical – 1 Qualitative analysis
- ❖ Under Graduate: Course CED-5: Inorganic Practical – 2 Quantitative analysis
- ❖ Teaching assistant (TA) for M.Sc. Chemistry lab courses at IIT Kanpur.

List of Publications:

- 1) Calcium ion incorporated hydrous iron (III) oxide: synthesis, characterization, and property exploitation towards water remediation from arsenite and fluoride, Abir Ghosh, Suparna Paul, Sayan Bhattacharya, **Palani Sasikumar**, Krishna Biswas, Uday Chand Ghosh, *Environ. Sci. Pollut. Res.*, **2019**, 26 (5), 4618-4632
- 2) Efficiency evaluation of arsenic (III) adsorption of novel graphene oxide@ iron-aluminium oxide composite for the contaminated water purification, Sweta Maji, Ayan Ghosh, Kaushik Gupta, Abir Ghosh, Uttam Ghorai, Angshuman Santra, Palani Sasikumar, Uday Chand Ghosh, *Sep. Purif. Technol.*, **2018**, 197, 388-400
- 3) Synthesis and characterisation of cerium (IV)-incorporated hydrous iron (III) oxide as an adsorbent for fluoride removal from water, Kankan Mukhopadhyay, Abir Ghosh, Supriyo Kumar Das, Bibhutibhushan Show, Palani Sasikumar, Uday Chand Ghosh, *RSC Advances*, **2017**, 7 (42), 26037-26051
- 4) Preparation, characterization and evaluation of fluoride adsorption efficiency from water of iron-aluminium oxide-graphene oxide composite material, Sarat Kanrar, Sushanta Debnath, Pradip De, Kanya Parashar, Kriveshini Pillay, Palani Sasikumar, Uday Chand Ghosh, *Chem. Eng. J.* **2016**, 306, 269-279.
- 5) Dinuclear metal phosphonates and -phosphates, Vadapalli Chandrasekhar, **Palani Sasikumar**, Tapas Senapati, Atanu Dey, *Inorg. Chim. Acta.* **2010**, 363(2), 2920-2928
- 6) Assembly of Tetra, Di and Mononuclear Molecular Cadmium Phosphonates using 2,4,6-Triisopropylphenylphosponic acid and Ancillary Ligands, Vadapalli Chandrasekhar, **Palani Sasikumar**, Ramamoorthi Boomishankar, *Dalton Trans.* **2008**, 5189-5196
- 7) First Example of a Molecular Ce(III) Phosphonate. Synthesis, Structural Characterization and Catalytic activity of $[\text{Ce}_2\{\text{Ph}_3\text{CPO}_2(\text{OEt})_4(\text{NO}_3)_2(\text{H}_2\text{O})_4]$. Structural Diversity of $\text{Ph}_3\text{CPO}_3\text{H}_2$, Vadapalli Chandrasekhar, **Palani Sasikumar**, *Dalton Trans.* **2008**, 6475-6480
- 8) Formation of a double-bicapped hexatin phosphate cage by a de-arylation reaction. Synthesis and structure of $[(\text{PhSn})_6(\mu\text{-OH})_2(\mu_3\text{-O})_2(\mu\text{-OEt})_4\{(\text{ArO})\text{PO}_3\}_4]$ (Ar=2,6-*i*-Pr₂C₆H₃), Vadapalli Chandrasekhar, **Palani Sasikumar**, Pakkirisamy Thilagar, *Organometallics* **2007**, 26(18), 4386-4388
- 9) Assembly of lipophilic tetranuclear (Cu₄ and Zn₄) molecular metallophosphonates from 2,4,6-triisopropylphenylphosponic acid and pyrazole ligands, Vadapalli Chandrasekhar, **Palani Sasikumar**, Ramamoorthi Boomishankar, Ganapathi Anantharaman. *Inorg. Chem.* **2006**, 45(8), 3344-3351

- 10) Multi-functional architectures supported on organostannoxane scaffolds, Vadapalli Chandrasekhar, **Palani Sasikumar**, Puja Singh, Ramalingam Thirumoorthi, Tapas Senapati, *J. Chem. Sci.* **2008**, *120*, 105-113
- 11) Chemically cross-linked polysilanes as stable polymer precursors for conversion to silicon carbide, Vadapalli Chandrasekhar, Venkatasubbaiah Krishnan, **Palani Sasikumar**, Varanasi S. R. Murthy, *J. Inorg. Organomet. Polymer. Mater.* **2007**, *7* (2), 439-446
- 12) Stannoxanes and phosphonates: New approaches in organometallic and transition metal assemblies, Vadapalli Chandrasekhar, Kandasamy Gopal, Loganathan Nagarajan, **Palani Sasikumar**, Pakkirisamy Thilagar, *J. Chem. Sci.* **2006**, *120*, 455-462
- 13) Synthesis, structure and reactivity of hydrated and dehydrated organotin cations, Vadapalli Chandrasekhar, Ramamoorthi Boomishankar, Kandasamy Gopal, **Palani Sasikumar**, Puja Singh, Alexander Steiner, Stefano Zacchini, *Eur. J. Inorg. Chem.* **2006**, 4129-4136
- 14) Multi-site coordination ligands assembled on organostannoxane supports, Vadapalli Chandrasekhar, Pakkirisamy Thilagar, **Palani Sasikumar**, *J. Organomet. Chem.* **2006**, *691*(8), 1681-1692
- 15) Mononuclear metal phosphinates with ancillary pyrazole ligands. Synthesis and X-ray crystal structures of $[M(\text{Ph}_2\text{PO}_2)_2(3,5\text{-DMPZ})_2]$ ($M = \text{Co}, \text{Zn}$), Vadapalli Chandrasekhar, Ramamoorthi Boomishankar, **Palani Sasikumar**, Loganathan Nagarajan, Andrew. W. Cordes, *Z. Anorg. Allg. Chem.* **2005**, *63* (13-14), 2727-2732
- 16) Organotin assemblies from Sn-C bond cleavage reactions, Vadapalli Chandrasekhar, Kandasamy Gopal, **Palani Sasikumar**, Ramalingam Thirumoorthi, *Coord. Chem. Rev.* **2005**, *249* (17-18), 1745-1765

Conference and Symposium Proceedings:

1) Lipophilic Molecular Metallophosphonates. Vadapalli Chandrasekhar, **Palani Sasikumar**, Balasubramanian Murugesu Pandian. 10th CRSI National Symposium in Chemistry, Delhi University, New Delhi, India, on **Feb 2007**

2) Assembly of new structural forms of organotin clusters by using phosphorus-based ligands. Vadapalli Chandrasekhar, **Palani Sasikumar**. An Indo-German Symposium, IIT Kanpur, Kanpur, India, on **Oct 2007**

3) Participated in 16th CRSI National Symposium in Chemistry, IIT Bombay, Bombay, India, on **Feb 2014**

4) Participated and delivered the oral presentation in “Recent Developments in Chemical Science & Technology: Young Scientists’ Meet (RDCST-2014)” at NIT Rourkela during **Mar, 2014**
Topic: B-N Incorporated π -conjugated Systems

5) Participated in **International Conference on Structural Chemistry on Molecules and Materials** during 30th Nov to 2nd Dec, 2014, Jointly hosted by, RSC, Calcutta University, NISER Kolkata and Jadavpur University

6) Participated and delivered the poster presentation in “18th CRSI National Symposium in Chemistry, Panjab University, New Delhi, India, on **Feb 2016**
Topic: B-N Incorporated π -conjugated Systems

7) Participated and delivered oral presentation in **1st Regional Science and Technology Congress-2016** during 13-14th Nov 2016, organized by DST, WB
Topic: Design and Synthesis of Molecular Based Receptors

8) Participated in **National Conference on Chemistry: Today and Tomorrow** during 26-27th July, 2018, organized by, Department of Chemistry, University of Kalyani, WB, India

9) Participated and delivered the poster presentation in **13th Young Scientist Conference- India International Science Festival**, Lucknow, 5-8th October, 2018, organized by, Ministry of Science and Technology, India

Theme: Climate change and sustainability - Biodiversity & Environment

Topic: Cost Effective Application of Economically Viable Mixed Metal Oxides as Water Purifier: Removal of Fluoride, in Particular

10) Participated and delivered oral presentation in **1st International Symposium on Main-group Molecules to Materials (MMM)**, Indian Institute of Science, Bangalore on 28th-31st October, 2018

Topic: Water Remediation Using Surface Modified Mixed Nano-Metal Oxide