

## Curriculum Vitae

### Dr. Srinivasa Rao Amanchi

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Chemistry Deptment  
IIT Hyderabad,  
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DOB: 1<sup>st</sup> February 1983  
Nationality: Indian  
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Education	University/Institute	Duration
<b>1. Ph.D</b> (Supervisor: Prof. Samar K Das)	<b>University of Hyderabad, India</b>	<b>2006-2011</b>
<b>2. Post-Doctoral</b> (Supervisor: Prof. Ronny Neumann)	<b>Weizmann Institute of Science, Israel</b>	<b>2012-2015</b>
<b>3. SERB-YOUNG SCIENTIST</b>	<b>IIT HYDERABAD</b>	<b>2016-2018.</b>
<b>4. Teaching Faculty for Undergraduate &amp; Graduate course.</b>	<b>IISc Bangalore</b>	<b>2018-2019.</b>

**Present: Working as a lecturer in Chemistry at SDS (A) Degree college, Garividi,**

**Ph.D Thesis title: "Diverse Polyoxometalates Clusters and Bismuth-Chloro Derivatives: Synthesis, Characterization, Catalysis and Photo-physical Studies"**

M.Sc. Chemistry	Andhra university	2003-2005	71% (2 <sup>nd</sup> position)
B.Sc. Chemistry	Andhra university	2000-2003	81% (1 <sup>st</sup> position)

### Objective

- ❖ Seeking a research opportunity in institute where I can contribute to the latest research and develop skills on research.

### Achievements

- ❖ Awarded Senior Research Fellowship sponsored by Council of Scientific and Industrial Research, India, **2008-2011**.
- ❖ **Best poster Presentation Award** in “National Conference on Material Chemistry (NCCM’08)” held in GITAM University-Visakhapatnam, India, **2008**.
- ❖ Awarded Junior Research Fellowship sponsored by Council of Scientific and Industrial Research, India, **2006-2008**.
- ❖ Qualified **GATE-2005** with 96.07 percentile and secured 135<sup>th</sup> all India rank.
- ❖ Secured 19<sup>th</sup> rank in M.Sc. Entrance Examination (**AUCET-2003**) conducted by Andhra University- Visakhapatnam.
- ❖ Achieved “**Sundaramayya and Raju Merit Award**” in Sciences in the year of 2003 from D. R. Goinka Degree Collage, Tadepalligudem.

## Academic skills

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- ❖ Good knowledge in Synthesis of various polyoxometalates , Simple organic transformations , Catalysis and Metal complexation
- ❖ Expertise in solving both inorganic like metal complexes, polyoxometalates and organic crystals and able to study all the interactions and supramolecular property
- ❖ Isolation, purification and characterization of organic compounds by modern chromatographic and spectroscopic (NMR, IR, UV-visible and mass spectrometry) techniques
- ❖ Hands on operation of NMR , FT-IR, GC, GC-MS, UV, CD and other techniques for analysis of organic compounds
- ❖ Well versed in crystallization techniques and single crystal X-ray crystallography
- ❖ Hands on experience with X-ray diffractometer (Smart Apex CCD), operation, structure solution and refinement
- ❖ Guided four graduate and post graduate students extensively by mentoring them in formulating their own projects.

## Computational

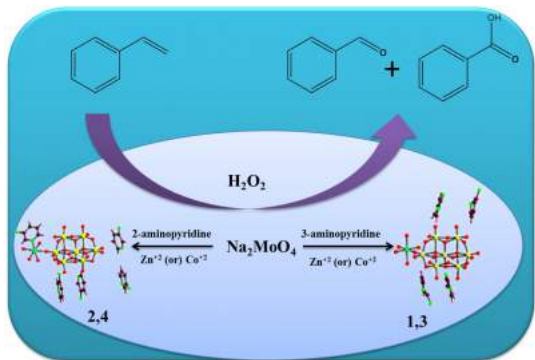
- ❖ (a) Crystallographic Packages: Bruker Crystallographic Software Packages (SAINT PLUS, SHELXTL), WINGX, SHELX-97, PLATON, RLATT (b) Graphical Software: Diamond, Mercury.
- ❖ Cambridge Structural Database (CSD)
- ❖ M.S. Word, Origin, Excel, Power Point, Chem Office, ISIS Draw, Adobe Photoshop
- ❖ Well conversant with literature searches in various on-line databases such as SciFinder, Beilstein, Scopus, and Chemical abstract.

## Thesis Brief Description

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My thesis work has been titled as “**Diverse Polyoxometalates Clusters and Bismuth-Chloro Derivatives: Synthesis, Characterization, Catalysis and Photo-physical Studies**” mainly focused on synthesizing novel inner-transition metal-oxo-clusters like decavadate, transition metal supported by heptamolybdate, Anderson anion by using aminopyridine derivatives, transition metal complexes and alkali metals as counter cations. And studied the catalytic activities of those materials in oxidation of styrene leading to different kind of products like benzaldehyde, styrene epoxide and benzoic acid. We are able optimize to get the single product with our POM compounds. Moreover some of the bismuth-chloro compounds are isolated and characterized by single crystal X-ray crystallography and U.V and emission studies. The compounds are characterized by usual spectral techniques such as UV-absorption, IR, PXRD, TGA / Mass, and followed by single crystal X-ray diffractometer analysis.

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**Picture 1. Conversion of styrene to benzaldehyde and benzoic acid under POM catalysis<sup>12</sup>**



**Scheme . Ene type mechanistic studies under catalytic studies using Zn/Bi sandwich polyoxometalates catalyst and H<sub>2</sub>O<sub>2</sub> as oxidant.<sup>13</sup>**

## Publications

### List of Publications:

#### 1. Published:

- 1) T. Arumuganathan, **A.Srinivasa Rao**, T. Vijay Kumar and Samar K Das\*. Two different Zinc(II)-aqua complexes held up by a metal-oxide based support: Synthesis, crystal structure and catalytic activity of [HMTAH]<sub>2</sub>[{Zn(H<sub>2</sub>O)<sub>5</sub>}{Zn(H<sub>2</sub>O)<sub>4</sub>}{Mo<sub>7</sub>O<sub>24</sub>}]·2H<sub>2</sub>O (HMTAH = protonated hexamethylenetetramine), *J. Chem. Sci.*, **2008**, **120**, 95-105.
- 2) T. Arumuganathan, **A. Srinivasa Rao** and Samar K. Das\*, Non-covalent O···O interactions among isopolyanions using a cis-{MoO<sub>2</sub>} moiety by the assistance of N–H···O hydrogen bonds, *J. Chem. Sci.*, **2008**, **120**, 297–304.
- 3) **A Srinivasa Rao**, Abhijit Pal , Ghosh R and Samar K. Das\*. Chiral synthesis of a mononuclear Nickel(II) complex from an Achiral Tripodal amine ligand: Spontaneous resolution, *Inorg. Chem.*, **2009**, **48**, 1802-1804.
- 4) **A Srinivasa Rao**, Eadi Sunil Babu, K C Kumar Swamy\* and Samar K. Das\*. Isolation and structural characterization of 1, 5-benzodiazepinium cation in an Inorganic-organic hybrid compound [C<sub>12</sub>H<sub>17</sub>N<sub>2</sub>]<sub>3</sub>[Bi<sub>2</sub>Cl<sub>9</sub>]·2EtOH , *polyhedron*, **2010**, **29**, 1706-1714.
- 5) **A Srinivasa Rao**, Bharat Kumar T, Kishore Ravada and Samar K. Das\*. Orthophenylenium salt of chloro acetate, *Acta. Cryst.* **2010**, **E66**, o1945.
- 6) T. Arumuganathan, **A. Srinivasa Rao** and Samar K. Das\*. Polyoxometalates Supported Transition Metal Complexes: Synthesis, Crystal structures, and Supramolecular Structures. *Crystal*

- growth & Design*, **2010**, **10**, 4272-4284. 7) **A Srinivasa Rao**, T Arumuganathan, V shivaiah and Samar K. Das\*. Polyoxometalates: new materials and properties, *J. Chem. Sci.*, **2011**, **123**, 229-239. (Cover page issue)
- 8) **A. Srinivasa Rao**, Upama Baruah and Samar K. Das\*., Stabilization of  $[\text{BiCl}_6]^{3-}$  and  $[\text{Bi}_2\text{Cl}_{10}]^{4-}$  with Various Organic Precursors as Cations Leading to Inorganic-Organic Supramolecular Adducts: Syntheses, Crystal Structures and Properties of  $[\text{C}_5\text{H}_7\text{N}_2]_3[\text{BiCl}_6]$ ,  $[\text{C}_5\text{H}_7\text{N}_2][\text{C}_5\text{H}_8\text{N}_2][\text{BiCl}_6]$  and  $[\text{C}_{10}\text{H}_{10}\text{N}_2]_2[\text{Bi}_2\text{Cl}_{10}]$ . *Inorg.Chim.Acta.*, **372**, **2011**, 206-212.
- 9) S. Saptapathi, S Roy, K. Bhar, R Ghosh, **A. Srinivasa Rao**, B.K. Ghosh., Synthesis, structures and properties of two binuclear cadmium (II) iodided containing a bis (tridentates) Schiff base/tetradentate tripodal amine: control of coordination number by varying ligand matrices, *Structural Chemistry.*, **2011**, **22**, 605-613.
- 10) S. Kushwaha, **A. Srinivasa Rao** and P. Padmaja. Uranyl ion lided fluorescent supramolecular capsule with Cucurbit[5]uril. *Inorg. Chem.* **2012**, **51**, 267-273.
- 11) Sridhevi Y, **A. Srinivasa Rao** and Samar K. Das\*. Synthesis and Structural Characterization of Lindqvist type mixed-metal cluster anion  $[\text{V}_2\text{W}_4\text{O}_{19}]^{4-}$  in discrete and coordination polymer compounds. *Journal of Molecular Structure.* **2014**, **1062**, 53–60.
- 12) A. Srinivasa Rao**, Anjali U Patel and Samar K. Das\*., Polyoxometalate coordinated transition metal complexes as catalysts: oxidation of styrene to benzaldehyde/benzoic acid, *J. Chem. Sci.*, **2014**, **126**, **6**, 1641–1645 (Cover page Issue)
- 13) **Srinivasa Rao Amanchi**, A. Kenkhin, Yael Diskin-Posner, Ronny Neumann\*., A Bismuth Substituted “Sandwich” Type Polyoxometalate Catalyst for Activation of Peroxide – Umpolung of the Peroxo Intermediate and Change of Chemoselectivity, *ACS Catalysis*, **2015**, **5**, 3336–3341
- 14) Ashok. V, **Srinivasa Rao Amanchi**, Ch. Subrahmanyam.\* Phenol and Cr(VI) degradation with Mn ion doped ZnO under Visible light photocatalysis, *RSC Advance*, **2017**, **7**, 43030-43039.
- 15) **Srinivasa Rao Amanchi** and Samar K. Das\*., A Versatile polyoxometalates in diverse cation matrices: A supremolecular prospective. *Frontiers in Chemistry*, **6** , **469**. **2018**.
- 16) Srinivasa Rao Amanchi**, K.V. Ashok, G. S. Rao Ch. Subrahmanyam.\* Photocatalytic hydrogenation of nitroarenes: supporting effect of  $\text{CoO}_x$  on  $\text{TiO}_2$  nanoparticles. *New Journal of Chemistry*, **2019**, **43**, 748-754.
- 16) **Srinivasa Rao Amanchi**, K.V. Ashok, G. S. Rao Ch. Subrahmanyam.\* Photo catalytic conversion of aryl-nitro to amino functionalization using cobalt based  $\text{TiO}_2$  semiconductor. (Subbmitted)

### Under communication:

17) **A. Srinivasa Rao** and Samar K. Das\*, Polyoxovanadate Based Materials: Synthesis, Structural Characterization and Catalysis. (**Under preparation**)

### To be submitted:

18. **A. Srinivasa Rao**, A. Kenkhin and Ronny Neumann\*.  $H_5PV_2Mo_{10}$  catalyzes the C-H bond photochemical activation with  $BiOCl_xBr_{1-x}$  (Manuscript under preparation). (Manuscript to be communicated).

### 2. List of Presentations :

1) **A. Srinivasa Rao** and Samar K. Das\*, One Pot Wet Synthesis of Inorganic-Organic Hybrid Materials with Polyoxometalates: Synthesis, Characterization and catalytic activity towards the oxidation of alcohols and epoxidation of olefins, **poster presented** in “**X CRSI-2008**” and which was held in Febraury-2008, Indian Institute of Science, Bangalore, India.

2) **A. Srinivasa Rao** and Samar K. Das\*, One Pot Wet Synthesis of Inorganic-Organic Hybrid Materials with Polyoxometalates: Synthesis, Characterization and catalytic activity towards the oxidation of alcohols and epoxidation of olefins, **poster presented** in “**Chemfest-2008**” and which was held in March-2008, School of Chemistry, University of Hyderabad, India.

3) **A. Srinivasa Rao** and Samar K. Das\*, One Pot Wet Synthesis of Inorganic-Organic Hybrid Materials with Polyoxometalates: Synthesis, Characterization and catalytic activity towards the oxidation of alcohols and epoxidation of olefins. **Awarded as the best poster presentation**, which was held in July-2008, (NCMC'08)” held in GITAM University-Visakhapatnam, India, 2008.

4) **A. Srinivasa Rao** and Samar K. Das\*, Coordination polymers with unusual linkers: Synthesis. Characterization and Applications . **Poster presented** in “**Chemfest-2009**” and which was held in March-2009, School of Chemistry, University of Hyderabad, India.

5) **A. Srinivasa Rao** and Samar K. Das\*, Synthesis and Characterization of Inorganic-Organic Hybrid Materials and their Catalytic Activity Towards Organic Transformations of Industrial Importance. **Poster presented** in “**XIII-MTIC-2009**” and held in December-2009, Indian Institute of Science, Bangalore, India. (**Modern Trends in Inorganic Chemistry**)

6) **A. Srinivasa Rao** and Samar K. Das\*, Synthesis and Characterization of Inorganic-Organic Hybrid Materials and their Catalytic Activities Towards Organic Transformations of Industrial Importance. **Lecture presented** in “**Chemfest-2010**” and which was held in January-2010, School of Chemistry, University of Hyderabad, India.

7) **A.Srinivasa Rao** and Samar K. Das\*, Synthesis and Characterization of Inorganic-Organic Hybrid Materials and their Catalytic Activities Towards Organic Transformations of Industrial Importance. **Lecture presented** in “**KVR Presentation-2010**” and which was held in June-2010, KVR Building, Hyderabad, India.

8) **Srinivasa Rao Amanchi**, Alexander Khenkin, Ronny Neumann, Ene-type reactions with cyclic olefins catalyzed by a Zn<sub>2</sub>Bi<sub>2</sub>-sandwich type polyoxometalate and anhydrous hydrogen peroxide. **Poster presented** in “**FMOCS 2014**” and held in July-2014, Maffliers, France.

### 3. Awards & Honors

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- ❖ Awarded Senior Research Fellowship sponsored by Council of Scientific and Industrial Research, India, **2008-2011**.
- ❖ **Best poster Presentation Award** in “National Conference on Material Chemistry (NCCM’08)” held in GITAM University-Visakhapatnam, India, **2008**.
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- ❖ Achieved “**Sundaramayya and Raju Merit Award**” in Sciences in the year of 2003 from D. R. Goinka Degree Collage, Tadepalligudem.

### 4. Areas of Research Interest

: **Homogeneous and heterogeneous**

**catalysis/Polyoxometalates/Photo catalysis**

### 5. References

1. Prof. Samar K. Das, School of chemistry, University of Hyderabad, Hyderabad-500046  
Email: [samar439@gmail.com](mailto:samar439@gmail.com)
2. Prof. Ronny Neumann, Dept of Organic Chemistry, weizmann institute of Science, Rehovot, 76100  
Email: [ronny.neumann@weizmann.ac.il](mailto:ronny.neumann@weizmann.ac.il)
3. Prof. A. V. Prasada Rao, Professor of Andhra University, Inorganic and Analytical Chemistry, Visakhapatnam.  
  
Former Vice Chancellor of Rayalaseema University, Karnool.

Date: 12/02/2021

Place: Cheepurupalli, A.P, India.

\*\*\*\*\*End of C.V\*\*\*\*\*







