Curriculum Vitae

Dr. Suryabhan Singh
Assistant Professor,
Department of Chemistry,
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Educational Background:

Ph. D. Chemistry (2011): Banaras Hindu University
Supervisor: Prof. Subrato Bhattacharya

Title: *Synthesis, structures and properties of thiophene-2-thiocarboxylate and pyridine-2,6-bis(thiocarboxylate) derivatives of some transition and main group metals.*

M. Sc. Chemistry (2007): Banaras Hindu University

B. Sc. (Hons.) Chemistry (2005): Banaras Hindu University

Awards/Fellowships:

- Post Doctoral Fellowship by IIT Indore, India, April, 2017
- Dr. D. S. Kothari Post Doctoral Fellowship by UGC, India, 2013
- Senior Research Fellowship by CSIR, India, 2010
- Junior Research Fellowship (NET-JRF) by CSIR, India, 2007

Research Interests:

- Mono/bi/polynuclear (Metal Organic framework) complexes of transition and main group metals.
- Development of crystals and investigation of their solid state structure and weak interactions in particular metal-metal and hydrogen bonding.
- To study their catalytic, gas storage (in case of MOFs), electrical and optoelectronic properties.
- Explore the structural chemistry of metal complexes by Density functional theory calculations by Natural bonding orbital calculations at DFT and *ab-initio* level.
- Applications of Time dependent density functional theory (TDDFT) calculations for metal complexes.

Professional Experience:

May 2018/Sept 2019	Post Doctoral Fellow under supervision of **Dr. A. K. Singh**, Department of Chemistry, Indian Institute of Technology Indore, on the topic "**Synthesis characterization and reactivity of transition metal complexes with multiple NHC donor ligands**".
April 2017/April 2018	Post Doctoral Fellow under supervision of **Prof. P. Mathur**, Department of Chemistry, Indian Institute of Technology Indore, on the topic "**Designing polynuclear 3d and 4f metal clusters bearing bridging chalcogenides for applications of as single molecule magnets**".
Nov. 2013/Nov. 2016	Dr. D. S. Kothari Post Doctoral Fellow under supervision of **Prof. S. Natarajan**, SSCU, Indian Institute of Science, Bangalore on the topic "**Development of new metal-organic frameworks (MOFs) for catalytic and gas storage (H_2, CO_2, CH_4) applications**".
July 2010/May 2013	Senior Research Fellow under the supervision of **Prof. S. Bhattacharya**, Department of Chemistry, BHU on the topic "**Synthesis, structures and properties of thiophene-2-thiocarboxylate and pyridine-2,6-*bis*(thiocaboxylate) derivatives of transition and main group metals".**
July 2008/June 2010	Junior Research Fellow under the supervision of **Prof. S. Bhattacharya**, Department of Chemistry, BHU on the topic **"Synthesis, structures and properties of thiophene-2-thiocarboxylate and pyridine-2,6-*bis*(thiocaboxylate) derivatives of transition and main group metals''.**
March 2008/June 2008	Junior Research Fellow under the supervision of **Prof. S. Bhattacharya**, Department of Chemistry, BHU on the topic **"Studies of synthesis, characterization and reactivity of organobimetallic complexes containing sulfide and disulfide ligands"** (CSIR Project)**.**

List of Publications:

1. Silver-Nitrilotriacetate Coordination Polymers: Supra-molecular and Photoluminescence Properties. **Suryabhan Singh,** *Inorg. Chim. Acta*, 495, 118939-1-7, **2019**
2. Coordination Behaviour of 2-(Methylthio)Pyrazine with Ag(I) in the resence of Different Counter Anions and Emission Properties. **Suryabhan Singh,** A. Raghuvanshi, P. Mathur and A. K. Singh, *Polyhedron*, 169, 8-13, **2019**
3. Cu(I)/Ag(I)-3-(2-Pyridyl)-5,6-diphenyl-1,2,4-triazine-p,p'-disulfonate Based Coordination Polymers: Synthesis, Structures and Photoluminescent Properties. **Suryabhan Singh,** *ChemistrySelect,* 3, 6786-6790, **2018**
4. Supramolecular architecture of organotin(IV) N-methyl ferrocenyl N-ethanol dithiocarbamates: crystallographic and computational studies. A. Kumar, A. Singh, R. Yadav, **Suryabhan Singh**, G. Kociok-Köhn and M. Trivedi *Inorg. Chim. Acta*, 471, 234-243, **2018**
5. Water linked 3D Coordination Polymers: Syntheses, Structures and Applications. **Suryabhan Singh*** and Anupam Bhim*,* J. Solid State Chem., 244, 151-159, **2016**
6. Hydrogen Energy Future with Formic Acid: A Renewable Chemical Hydrogen Storage System. A. K. Singh**, Suryabhan Singh*** and A. Kumar, Catal. Sci. Technol., 6, 12-40, **2016**
7. Structural diversities in Cu(I) and Ag(I) sulfonate coordination polymers and their anion exchange properties. **Suryabhan Singh*** and R. Karthik, *CrystEngComm*, 17, 7363-7371, **2015**.
8. Synthesis, Crystal Structure and Spectroscopic and Electrochemical Properties of Bridged Trisbenzoato Copper-Zinc Heterobinuclear Complex of 2, 2'-Bipyridin. A. Koch, A. Kumar, **Suryabhan Singh**, R. Borthakur, D. Basumatary and R. A. Lal, *J. Mol. Structure*, 1083, 381-388, **2015**.

9. Phenylmercury(II) methylferrocenyldithiocarbamate functionalized dye-sensitized solar cells with hydroxyl as an anchoring group. R. Chauhan, G. K.-Köhn, M. Trivedi, **Suryabhan Singh**, A. Kumar and D. P. Amalanerkar, *J. Solid State Electrochem.,* 19, 739-747, **2015**.
10. Studies of structural diversity due to inter-/intra-molecular hydrogen bonding and photoluminescent properties in thiocarboxylate Cu(I) and Ag(I) complexes. **Suryabhan Singh*** and S. Bhattacharya, *RSC Advances,* 4, 49491-49500, **2014**.
11. New ternary compounds containing Zn-Cu and Zn-Ag from single molecular source precursors. **Suryabhan Singh**, J. Chaturvedi and S. Bhattacharya, *RSC Advances,* 4, 11469-11474, **2014**.
12. A Cu(II) mediated new desulfurization pathway involving elimination of ethylene sulfide. N. Sareen, **Suryabhan Singh** and S. Bhattacharya, *Dalton Trans.*, 43, 4635-4638, **2014**.
13. ROS and RNS induced apoptosis through p53 and iNOS mediated pathway by a dibasic hydroxamic acid molecule in leukemia cells. K. Banerjee, A. Ganguly, P. Chakraborty, A. Sarkar, **Suryabhan Singh**, M. Chatterjee, S. Bhattacharya and S. K. Choudhuri, *Eur. J. Phar. Sci.*, 52, 146-164, **2014**.
14. Syntheses and structural studies of heterobimetallic thiocarboxylate complexes containing zinc and silver. **Suryabhan Singh,** J. Chaturvedi, and S. Bhattacharya, *Inorg. Chim. Acta,* 407, 31-36, **2013**.
15. Syntheses and structural studies of heterobimetallic thiocarboxylate complexes containing zinc and copper**. Suryabhan Singh,** J. Chaturvedi, A. S. Aditya, N. R. Reddy and S. Bhattacharya, *Inorg. Chim. Acta,* 396, 6-9, **2013**.
16. Studies of titanocene and zirconocene pyridine-2,6-*bis*-thiocarboxylates exhibiting partial desulfurization. **Suryabhan Singh** and S. Bhattacharya, *Inorg. Chim. Acta,* 395, 230-236, **2013**.
17. Supramolecular organotin(IV) framework derived from pyridine-2,6-*bis*(thiocarboxylate) ligand. **Suryabhan Singh** and S. Bhattacharya, *Inorg. Chem. Comm.*, 24, 144-147, **2012**.
18. Solvent dependent crystallization of a few Hg(II) thiocarboxylates. **Suryabhan Singh**, J. Chaturvedi and S. Bhattacharya, *Inorg. Chim. Acta*, 385, 112-118, **2012**.
19. Studies of synthesis, structural features of Cu(I) thiophene-2-thiocarboxylates and unprecedented desulfurization of Cu(II) thiocarboxylate complexes. **Suryabhan Singh**, J. Chaturvedi and S. Bhattacharya, *Dalton Trans*., 41, 424-431, **2012**.
20. The Chemistry of Cadmium-Thiocarboxylate Derivatives: Synthesis, Structural Features, and Application as Single Source Precursors for Ternary Sulfides. **Suryabhan Singh**, J. Chaturvedi, S. Bhattacharya and H. Nöth, *Inorg. Chem.*, 50, 10056-10069, **2011**.
21. Synthesis of triphenyltin(IV) hydrosulfide. **Suryabhan Singh** and S. Bhattacharya, *Inorg. Chim. Acta*, 367, 230-232, **2011.**
22. Silver(I) catalyzed oxidation of thiocarboxylic acids into the corresponding disulfides and synthesis of some new Ag(I) complexes of thiophene-2- thiocarboxylate. **Suryabhan Singh**, J. Chaturvedi,, S. Bhattacharya and H. Nöth, *Polyhedron*, 30, 93-97, **2011**.
23. N-(Prop-2-yn-1-yl)-1,3-benzothiazol-2-amine. A. Agarwal, M. K. Singh, **Suryabhan Singh**, S. Bhattacharya and S. K. Awasthi, *Acta Cryst.*, E67, 2637-2638, **2011**.
24. Synthesis and Structural Studies of Organotin(IV) and Organolead(IV) Thiophene-2- thiocarboxylate. **Suryabhan Singh**, S. Bhattacharya and H. Nöth. *Eur. J. Inorg. Chem.,* 5691-5699*,* **2010**.

Conference/Symposium/Workshop:

1. GAIN Course (Inorganic Chemistry of imaging: magnetic resonance and optical imaging with coordination complexes) 2018, Indian Institute of Technology Indore, MP, India (Participated).
2. GAIN Course (Metal-ligand interplay in advanced coordination chemistry) 2018, Indian Institute of Technology Indore, MP, India (Participated).
3. RSC-Symposium 2018, Indian Institute of Technology Indore, MP, India (Attended).
4. 15th CRSI-National Symposium in Chemistry, 1-3 Feb. 2013, Department of Chemistry, Banaras Hindu University, India (Attended).

5. 7th CRSI-RSC Symposium in Chemistry, 31 Jan. 2013, Department of Chemistry, Banaras Hindu University, India (Attended).
6. 3rd Asian Conference on Coordination Chemistry (ACCC-3), 17-20 Oct. 2011, New Delhi, India (Poster presentation).
7. International conference on Chemistry: Frontiers and Challenges, 5-6 March 2011, AMU, Aligarh, India (Poster presentation).
8. International Symposium on Frontiers in Inorganic Chemistry, 11-13 Dec. 2010, IACS Kolkata, India (Poster presentation).
9. 13th CRSI National Symposium in Chemistry & 5th CRSI-RSC Symposium in Chemistry, 4-6 Feb. 2011, NISER, Bhubaneswar, India (Poster presentation).
10. 12th CRSI National Symposium in Chemistry & 4th CRSI-RSC Symposium in Chemistry, 5-7 Feb. 2010, IICT Hyderabad, India (Poster presentation).
11. Emerging Trend in Chemical Sciences (ETCS-2011), 19-20 Feb. 2011, Department of Chemistry, BHU, Varanasi, India (Poster presentation).
12. Winter school in Crystallography, 22 Nov.–4 Dec. 2010, School of Chemistry, Central University of Hyderabad, India (Participated).
13. National symposium-cum-Workshop on X-ray Crystallography, Feb. 2010, Department of Chemistry, BHU, Varanasi, India (Attended).
14. 12th International Symposium on Inorganic Ring Systems (IRIS-12), 16-21 Aug. 2009, Goa, India, (Attended).
15. Designing the world through chemistry, March 2006, Department of Chemistry, BHU, Varanasi, India (Attended).