

Dr. Saptarshi Biswas

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Academic information

- Doctoral Degree: Ph.D. (2014) in Science from Department of Chemistry, University of Calcutta, India.
Title: Studies on Homo- and Hetero-Metallic Polynuclear Complexes of Copper(II) with Schiff Base Ligands
- Post Graduate Education: M. Sc. (2008) in Chemistry with specialization in Analytical Chemistry, Department of Chemistry, University of Calcutta, India.
- Undergraduate Education: B. Sc. (2006) in Chemistry (Hons.), Department of Chemistry, Ramakrishna Mission Vivekananda Centenary College, University of Calcutta, India.

Postdoctoral Research Experience

- Feb 2014 – Sept 2014: Department of Chemistry, Jadavpur University, India; funded by UGC through Dr. D. S. Kothari Postdoctoral Fellowship.
Title: Studies on Multifunctional Porous Metal-Organic Coordination Polymers
- Oct 2014 – Oct 2016: School of Chemistry, Trinity College Dublin, Ireland; funded by Irish Research Council through Government of Ireland Postdoctoral Fellowship.
Title: The mineral chemistry of Uranium

Research Awards

1. Qualified National Eligibility Test (NET) 2008 in Chemical Science, conducted jointly by University Grant Commission and Council of Scientific and Industrial Research, Govt. of India.
2. Senior Research Fellowship (SRF) 2011 by Council of Scientific and Industrial Research, Govt. of India.
3. Awarded by University Grants Commission, Govt. of India through Dr. D. S. Kothari postdoctoral Fellowship.
4. Awarded by Irish Research Council through Govt. of Ireland Postdoctoral Fellowship.

List of Publications

1. Dehydration of the uranyl peroxide studtite, $[\text{UO}_2(\eta^2\text{-O}_2)(\text{H}_2\text{O})_2]\cdot 2\text{H}_2\text{O}$, affords a drastic change in the electronic structure: A combined X-ray spectroscopic and theoretical analysis
T. Vitova, I. Pidchenko, **S. Biswas**, G. Beridze, P. W. Dunne, D. Schild, Z. Wang, P. M. Kowalski, R. J. Baker
Inorg. Chem. 2018, 57, 1735–1743.
2. Structural variability of 4f and 5f thiocyanate complexes and dissociation of uranium(III)–thiocyanate bonds with increased ionicity
S. Biswas, S. Ma, S. Nuzzo, B. Twamley, A. T. Russell, J. A. Platts, F. Hartl, R. J. Baker
Inorg. Chem. 2017, 56, 14426-14437.
3. Small gas molecules access into void space of H-bonded 3D network consist of 2D cadmium(II) layer
S. Biswas, S. Gayen, T. Maity, S. Koner
Inorg. Chim. Acta, 2017, 461, 21-26.

4. An investigation of the interactions of Eu^{3+} and Am^{3+} with uranyl minerals: implications for the storage of spent nuclear fuel
S. Biswas, R. Steudtner, M. Schmidt, C. McKenna, L. León Vitró, B. Twamley, R. J. Baker
Dalton Trans, 2016, 45, 6383-6393.
5. A magnesium-based bifunctional MOF: Studies on proton conductivity, gas and water adsorption
S. Singha, S. K. Maity, **S. Biswas**, R. Saha, S. Kumar
Inorg. Chim. Acta, 2016, 453, 321-329.
6. Synthesis, crystal structure and magnetic properties of two alternating double $\mu_{1,1}$ and $\mu_{1,3}$ azido bridged Cu(II) and Ni(II) chains
P. Bhowmik, **S. Biswas**, S. Chattopadhyay, C. Diaz, C. J. Gómez-García, A. Ghosh
Dalton Trans, 2014, 43, 12414-12421.
7. Nickel(II) complexes self-assembled from hexamethylenetetramine and isomeric nitrobenzoates: Structural diversity and supramolecular features
S. Hazra, **S. Biswas**, A. M. Kirillov, A. Ghosh
Polyhedron, 2014, 79, 66-71.
8. Supramolecular 2D/3D Isomerism in a Compound Containing Heterometallic $\text{Cu}^{\text{II}}_2\text{Co}^{\text{II}}$ Nodes and Dicyanamide Bridges
S. Biswas, C. J. Gómez-García, J. M. Clemente-Juan, S. Benmansour, A. Ghosh
Inorg. Chem. 2014, 53, 2441-2449.
9. Structural and theoretical investigation on two dinuclear Fe(III) complexes of tridentate NNO-donor Schiff base ligands
S. Naiya, S. Giri, **S. Biswas**, M. G. B. Drew, A. Ghosh
Polyhedron, 2014, 73, 139-145.
10. Use of Cu(II)-di-Schiff bases as metalloligands in the formation of complexes with Cu(II), Ni(II) and Zn(II) perchlorate
S. Biswas, A. Ghosh,
Polyhedron, 2013, 65, 322-331.
11. Metalloligands [CuL] (H_2L = Salen Type Di-Schiff Bases) in the Formation of Heterobimetallic Copper(II)-Uranyl Complexes: Photophysical Investigations, Structural Variations, and Theoretical Calculations
S. Ghosh, **S. Biswas**, A. Bauzá, M. Barceló-Oliver, A. Frontera, A. Ghosh
Inorg. Chem. 2013, 52, 7508-7523.
12. A new family of trinuclear nickel(II) complexes as single-molecule magnets
R. Biswas, Y. Ida, M.L. Baker, **S. Biswas**, P. Kar, H. Nojiri, T. Ishida, A. Ghosh,
Chem. Eur. J. 2013, 19, 39433-3953.
13. The first triple phenoxido-bridged triangular $\text{Ni}^{\text{II}}\text{Cu}^{\text{II}}_2$ complexes with a N_2O_2 donor di-Schiff base and pseudohalide ($\text{N}(\text{CN})_2^-$ or NCS^-) ligands: Structural analyses and magnetic properties
S. Biswas, C. Diaz, A. Ghosh,
Polyhedron, 2013, 51, 96-101.
14. Inclusion of a guest molecule in a tetranuclear adduct of sodium perchlorate and copper(II) complex of di-Schiff base ligand
S. Biswas, S. Naiya, M.G.B. Drew, A. Ghosh
J. Indian Chem. Soc., 2012, 89, 1317-1322.
15. A novel 1D chain of azido bridged copper(II) with a salen-type di-Schiff base ligand
S. Biswas, A. Ghosh
J. Mol. Struct. 2012, 1019, 32-36.
16. An unusual axial-axial combination of alternating cyclic rings in the chair conformations of hexameric water and chlorine-water clusters
S. Naiya, **S. Biswas**, M. G. B. Drew, A. Ghosh
Inorg. Chem. Commun. 2012, 20, 286-289.

17. Structural variations in polynuclear copper(II) complexes based on salicylaldimine type ligands along with dicyanamido co-ligand
S. Biswas, A. Ghosh
Polyhedron, 2012, 39, 31–37.
18. Copper(II)–Mercury(II) Heterometallic Complexes Derived from a Salen-Type Ligand: A New Coordination Mode of the Old Schiff Base Ligand
S. Biswas, R. Saha, A. Ghosh
Organometallics, 2012, 31, 3844–3850.
19. A Ferromagnetic methoxido-bridged Mn(III) dimer and a spin-canted metamagnetic $\mu_{1,3}$ -azido-bridged chain
S. Naiya, **S. Biswas**, M. G. B. Drew, C. J. Gómez-García, A. Ghosh
Inorg. Chem. 2012, 51, 5332–5341.
20. Complexes of NiX₂ (X = Cl⁻ and NO₃⁻) with a NNO donor Schiff base: Anion dependent structural variations and spectroscopic behaviour
S. Naiya, **S. Biswas**, M. G. B. Drew, A. Ghosh
Polyhedron, 2012, 34, 67–73.
21. A Molecular Lock and key: “Unlocked-Locked” Conformational Switching of a Receptor by Anions
S. Dalapati, M. A. Alam, S. Jana, R. Saha, **S. Biswas**, N. Guchhait
Chempluschem, 2012, 34, 93-97.
22. Synthesis of the first heterometallic star-shaped oxido-bridged MnCu₃ complex and its conversion into trinuclear species modulated by pseudohalides (N₃⁻, NCS⁻ and NCO⁻): Structural analyses and magnetic properties
S. Biswas, S. Naiya, C. J. Gómez-García and A. Ghosh
Dalton Trans., 2012, 41, 462-473.
23. A rare case of solution and solid state inter-conversion of two copper(II) dimmers and a copper(II) chain
S. Naiya, **S. Biswas**, M. G.B. Drew, C. J. Gómez-García and A. Ghosh
Inorg. Chim. Acta, 2011, 377, 26–33.
24. Incorporation of lead(II) by copper(II)-salicylaldimine type ligand complexes: Cation– π interactions in controlling the distortion of coordination geometry around lead(II)
S. Biswas, A. Ghosh
Indian J. Chem. A, 2011, 50, 1356-1362.
25. Structure and Magnetic properties of a tetranuclear Cu(II) complex containing the 2-(pyridine-2-yliminomethyl)-phenol ligand
S. Giri, **S. Biswas**, M. G.B. Drew, A. Ghosh, S. K. Saha
Inorg. Chim. Acta, 2011, 368, 152-156.
26. Synthesis and crystal structure of a heterometallic tetra-nuclear copper(II)–cadmium(II) complex and its anion modulated conversion into a trinuclear species
S. Biswas, A. Ghosh
Polyhedron, 2011, 30, 676-681.
27. Trinuclear and tetranuclear adduct formation between sodium perchlorate and copper(II) complexes of salicylaldimine type ligands: Structural characterization and theoretical investigation
S. Biswas, S. Naiya, M. G.B. Drew, C. Estarellas, A. Frontera, A. Ghosh
Inorg. Chim. Acta, 2011, 366, 219-226.