

Curriculum Vita of Dr. Anangamohan Panja

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Biographical Data

1. Name : **Dr. Anangamohan Panja**
2. Mailing Address : Post-graduate Department of Chemistry
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3. Date of Birth : **30. 03. 1977**
4. Nationality : Indian
5. Material Status : Married
6. Present Position : Assistant Professor in Chemistry, Panskura Banamali College

Professional Activities

Sept. 2006 – Till date:

Assistant Professor in Postgraduate Department of Chemistry, Panskura Banamali College, Panskura RS, WB 721152, India

March, 2004 – June, 2006:

Postdoctoral Research Associate in the Department of Chemistry, Wichita State University, 1845 Fairmount, Wichita, KS 67260-0051, USA

August, 2009 – June, 2010:

Erasmus Mundus Postdoctoral Fellow, ICMCB-University of Bordeaux, France

July, 2010 – April, 2011:

JSPS Invited Researcher, Nara Institute of Science and Technology, Japan

Educational Qualifications

Sept. 1999-Mar, 2004

Ph.D. from Jadavpur University: Doctoral research in the area of ‘Synthesis and studies on the redox chemistry of manganese(III) and manganese(III,IV) complexes’ with Professor Pradyot Banerjee in the Department of Inorganic Chemistry, Indian Association for the Cultivation of Science, Kolkata – 700 032, India.

- Aug. 1999** Received M.Sc. (Master of Science) Degree in Chemistry (Inorganic Chemistry as Special) from University of Calcutta, Kolkata, India.
- Aug. 1997** Received B.Sc. (Honors) Degree in Chemistry from University of Calcutta, Kolkata, India.
- June, 1994** Higher Secondary (10+2), WBCHSE.
- April, 1992** School Leaving (10) (Madhyamik Examination, WBBSE).

Honours and Awards

- * Awarded JSPS Invitation Fellowship on 2010
- * Awarded Erasmus Mundus Fellowship for postdoctoral researcher (2009)
- * Awarded JSPS Postdoctoral Fellowship on August 2006 (not enjoyed)
- * Qualified National Eligibility Test (NET), Council of Scientific and Industrial Research (CSIR) for Lectureship and Fellowship, Govt. of India, 2000
- * Qualified Graduate Aptitude test in Engineering (GATE) for Fellowship, 1999
- * Life member of Indian Physical Society
- * Life Member of Indian Chemical Society

Research and Instrumental Skills

- * Expertise in X-ray Crystallography (especially in CCD diffractometer), data collection, structural solution and refinement
- * Handling SQUID magnetometer
- * Expertise in Schlenk and Glove box techniques
- * UV-Vis-NIR Spectrophotometry
- * Cyclic Voltammetry
- * ^1H and ^{13}C NMR
- * Kinetic Data Analysis Using Suitable Computer Program
- * Design and synthesis of ligands and its characterization by ^1H and ^{13}C NMR spectroscopy, single crystal X-ray crystallography
- * Synthesis of the transition metal complexes and its structural characterization by single crystal X-ray diffraction study
- * Expertise in bio-inspired catalytic study using UV/Vis spectrophotometer
- * Isolation and separation of organic and inorganic compounds by TLC and column chromatography

Current Research Interests

- * My research group is interested in the magneto-structural and chemical properties of multiple and single transition metal based co-ordination complexes using both

redoxinnocent (Schiff base ligands) and non-innocent ligands (dioxolene and tetraoxolene ligands). The obtained complexes are explored for the molecular materials with desired electronic and magnetic properties. Research of this field covers extensive synthesis, molecular (X-ray structure) and electronic structural (magnetic and spectroscopic) characterization, investigation of reactivity (chemical and redox), and understanding of metal-ligand bonding characteristics in which the main focus is the correct description of the electronic of compounds containing open-shell organic ligands and paramagnetic metal ion

- * Apart from the materials perspective, the research group has also been involved to develop metalloenzyme model complexes and protein active-site mimics. Study of these bio-inspired systems could provide a lot of understanding of role of the metal ions in the biochemical reactions. Ultimately, the knowledge of which could be helpful to develop synthetic catalysts for industrial and synthetic processes.

Research Project

Sl. No.	Title	Agency	Period	Grant (in Indian currency)
1.	Structural and Functional models for Catechol oxidase and phenoxazinone synthase	University Grant Commission, India	Completed (16.02.2012 to 15.02.2014)	1,99,000.00
2.	Development of Thermal and Photo Functional Molecular Materials using Di- and Tetra-Oxolene Chelated Valence Tautomeric Transition Metal Complexes	Department of Science and Technology (DST), India	On-going (27.02.2014 to 26.02.2017)	26,00,000.00
3.	Development of coordination chemistry of paramagnetic metal ions for the queue of molecular magnetism	Council of Scientific and Industrial Research (CSIR), India	On-going (01.10.2015 to 30.09.2018)	9,00,000.00 (excluding overhead)

Teaching Experience

- * B. Sc Honours classes taken as a guest lecturer at R. K. M. Residential College, Narendrapur, from 2000 to 2001.
- * B. Sc Honours and M. Sc. classes taken as a full-time lecturer at Panskura Banamali College, Purba Medinipur from September 14, 2006 and onwards.
- * M. Sc. classes taken as a guest Professor in the Department of Chemistry, Jadavpur University, since 2012.

Publications

56. Pseudohalides regulated diverse helicity in copper(II) coordination polymers derived from a bis(aminoethoxy) ligand: A combined theoretical and experimental study"
N. Jana, K. Pramanik, A. Bauza, P. Brandão, M. Patra, A. Frontera and **A. Panja***, *Cryst. Growth Des.* Under review, Manuscript ID: cg-2016-01095k.
55. In vitro evaluation of antibacterial, antifungal and larvicidal activities of pyrazole derived N,S chelates, its nanocrystalline MS (M=Cu and Cd) derivatives and a bridged $[\text{Cu}(\mu\text{-Cl})_2(\text{Pyridine})_2]_n$ complex: Structure-activity relationship and recrystallization of $[\text{Cu}(\mu\text{-Cl})_2(\text{Pyridine})_2]_n$
G. Mondal, H. Jana, M. Acharjya, A. Santra, P. Bera, A. Jana, **A. Panja** and P. Bera, *Med. Chem. Res.*, Under review, Manuscript ID: MCRE-D-16-00646
54. Insight into the origin of catechol oxidase activity in a rare mixed valence complex ion pairs of MnII/MnIII system: an account of comparative biomimetic catalytic study
A. Panja*, N.C. Jana and S. Adak, *New J. Chem.*, Under review, Manuscript ID: NJ-ART-06-2016-001834
53. Inorganic Organic Hybrid Phosphomolybdates based on Ni (II)/Co(II): Structural Diversity and Solvent Triggered cis/trans Isomerism in Cobalt-Dioxolene Chemistry: Distinguishing Effect of Packing on Valence Tautomerism
A. Panja*, N.C. Jana, A. Bauza, A. Frontera and C. Mathoniere, *Inorg.Chem.*, 2016, DOI: 10.1021/acs.inorgchem.6b00402
52. Hydrothermal Synthesis of Two Supramolecular Heterogeneous Catalytic activity
L. Paul, M. Dolai, **A. Panja** and M. Ali, *New J. Chem.*, 2016, 40, 6931--6938
51. Mono- and di-nuclear nickel(II) complexes derived from NNO donor ligands: syntheses, crystal structures and magnetic studies of dinuclear analogues
P. Ghorai, A. Chakraborty, **A. Panja**, T. K. Mondal and A. Saha, *RSC Advances*, 2016, 6, 36020.
50. Catechol oxidase mimetic activity of copper(I) complexes of 3,5-dimethyl pyrazole derivatives: Coordination behavior, X-ray crystallography and electrochemical study
A.Santra, G. Mondal, M. Acharjya, P. Bera, **A. Panja**, T. K. Mandal, P. Mitra and P. Bera, *Polyhedron*, 2016, 113, 5–15
49. Tuning the geometry and biomimetic catalytic activity of manganese(III)-tetrabromocatecholate based robust platforms by introducing substitution at pyridine
N. C. Jana, P. Brandão and **A. Panja***, *J. Inorg. Biochem.*, 2016, 159, 96–106
48. Synthesis, crystal structure, redox property and theoretical study of a pyrrole containing cobalt(III) Schiff base compound
A. Panja* and T. K. Mandal, *Ind. J. Chem. Sec A*, 55A, 137-144.
47. Synthesis, structures, electronic properties and DFT calculations of cobalt(II) complexes with redoxnoninnocent naphthoquinone ligand
N. C. Jana, S. Adak, P. Brandão, T. K. Mandal and **A. Panja***, *Polyhedron*, 2016, 107, 48–56
46. Valence Tautomerism induced nucleophilic ipso substitution in a coordinated tetrabromocatecholate ligand and diverse catalytic activity mimicking the function of phenoxazinone synthase

- A. Panja**,* N. C. Jana, M. Patra, P. Brandão, C. E. Moore, D. M. Eichhorn and A. Frontera *J. Mol. Cat A.*, **2016**, 412, 56–66.
45. Novel Cu^{II}-M^{II}-Cu^{II} (M = Cu or Ni) trinuclear and [Na^I₂Cu^{II}₆] hexanuclear complexes assembled by bi-compartmental ligands: syntheses, structures, magnetic and catalytic studies
S. Biswas, A. Dutta, M. Dolai, I. Bhowmick, M. Rouzières, R. Clérac, **A. Panja** and M. Ali, *Dalton Trans*, **2015**, 44, 9426-9438
 44. Influence of anionic co-ligands on the structural diversity and catecholase activity of copper(II) complexes with 2-methoxy-6-(8-iminoquinolinylmethyl)phenol
M. Shyamal, T. K. Mandal, **A. Panja*** and A. Saha, *RSC Advances*, **2014**, 4, 53520
 43. Metal ionic size directed complexation in manganese(II) coordination chemistry: Efficient candidates showing phenoxazinone synthase mimicking activity **A. Panja**, *RSC Advances*, **2014**, 4, 37085-37094.
 42. Selective coordination of multidentate ligands in manganese(II) complexes: Syntheses, structures and phenoxazinone synthase mimicking activity
A. Panja, *Polyhedron*, **2014**, 79, 258-268
 41. Exclusive selectivity of multidentate ligands independent on the oxidation state of cobalt: influence of steric hindrance on dioxygen binding and phenoxazinone synthase activity
A. Panja, *Dalton Trans*, **2014**, 43, 7760-7770
 40. Syntheses and structural characterizations of cobalt(II) complexes with N₄-donor Schiff base ligands: Influence of methyl substitution on structural parameters and on phenoxazinone synthase activity
A. Panja, *Polyhedron*, **2014**, 80, 81-89 (**Leovac Special Issue**)
 39. Methylene bridge regulated geometrical preferences of ligands in cobalt(III) coordination chemistry and phenoxazinone synthase mimicking activity
A. Panja*, M. Shyamal, A. Saha and T. K. Mandal, *Dalton Trans*, **2014**, 43, 5443.
 38. Synthesis and structural characterization of a cyanide-bound heterodinuclear FeCo complex
A. Panja, *J. Ind. Chem. Soc.* **2014**, 91, 619-623.
 37. Stoichiometry controlled syntheses of cyanide-bound iron(II) and iron(III) complexes and their X-ray crystal structures
A. Panja, *J. Ind. Chem. Soc.* **2014**, 91, 237-243.
 36. Understanding of binding of a bis(imido)-bridged dinuclear cobalt(III) complex with *Calf thymus* DNA
A. Panja, *J. Ind. Chem. Soc.* **2014**, 91, 195-199.
 35. Five new mononuclear Zinc(II) complexes with tetradentate N-donor Schiff base: Syntheses, structures and influence of anionic coligands on luminescence behaviours and supramolecular interactions
M. Shyamal, **A. Panja** and A. Saha, *Polyhedron*, **2014**, 69, 141.
 34. A linear S-bridged trinuclear cobalt(III) complex with 2-aminobenzenethiol: synthesis, crystal structure, and spectroscopic characterization
A. Panja*, C. Moore and D. M. Eichhorn, *J. Coord. Chem.*, **2013**, 66, 3037-3044.

33. Spin Crossover or Intra-Molecular Electron Transfer in a Cyanido-Bridged Fe/Co Dinuclear Dumbbell: A Matter of State
I-R. Jeon, S. Calancea, **A. Panja**, D. M. Piñero Cruz, E. S. Koumoussi, P. Dechambenoit, C. Coulon, A. Wattiaux, P. Rosa, C. Mathonière, and R. Clérac, *Chem. Sci.*, **2013**, *4*, 2463-2470.
32. Role of the metal sites of a heterobimetallic trinuclear complex on DNA binding and cleavage activities
A. Panja, *J. Coord. Chem.*, **2013**, *66*, 2178-2190.
31. A unique supramolecular sandwich structure of a tetrabromocatechol-chelated iron(III) complex: mutual reinforcement of H-bonding and $\pi\cdots\pi$ stacking interactions in the crystal lattice
A. Panja, *Inorg. Chem. Commun.*, **2013**, *32*, 42-46.
30. Diversity in supramolecular self-assembly through hydrogen-bonding interactions of non-coordinated aliphatic –OH group in a series of heterodinuclear CuII/M (M=NaI, ZnII, HgII, SmIII, BiIII, PbII and CdII)
M. Dolai, T. Mistri, **A. Panja**, M. Ali, *Inorg. Chim. Acta*, **2013**, *399*, 95–104.
29. A series of tetrabromocatecholate chelated cobalt(III) complexes with various N-donor ancillary ligands: syntheses, crystal structures, co-crystallization, thermally induced valence tautomerism and electrochemical studies
A. Panja, *RSC Advances*, **2013**, *3*, 4954–4963.
28. The first example of a centro-symmetrical bis(imido)-bridged dinuclear cobalt(III) complex: synthesis via oxidative dehydrogenation and phenoxazinone synthase activity
A. Panja* and P. Guionneau, *Dalton Trans.*, **2013**, *42*, 5068–5075.
27. Syntheses, Structures, and Magnetic Properties of a Novel mer-[(bbp)FeIII(CN)3]2– Building Block (bbp: bis(2-benzimidazolyl)pyridine dianion) and Its Related Heterobimetallic Fe(III)–Ni(II) Complexes
A. Panja*, P. Guionneau, I.-R. Jeon, S. M. Holmes, R. Clérac and C. Mathonière, *Inorg. Chem.* **2012**, *51*, 12350-12359.
26. Unusual structural features in tetrabromocatechol-chelated dinuclear manganese(III) complex: Synthesis, electrochemistry and thermally induced valence tautomerism **A. Panja**, *Inorg. Chem. Commun.*, **2012**, *243*, 140-143.
25. First crystallographic report on a novel 2D layer of water pentagons: L5(7) water motif enclathrating [Co(cyclam)Cl₂]
A. Jana, A. D. Jana, I. Bhoumick, T. Mistri, M. Dolai, K. K. Das, **A. Panja** and M. Ali, *Inorg. Chem. Commun.*, **2012**, *243*, 157-161.
24. Mononuclear cobalt(III) and iron(II) complexes with diimine ligands: Synthesis, structure, DNA binding and cleavage activities, and oxidation of 2-aminophenol **A. Panja**, *Polyhedron*, **2012**, *43*, 22-30.
23. Mono- and di-nuclear nickel(II) complexes with mixed N/S-donor ligands: Syntheses, structures and physical properties
A. Panja* and D. M. Eichhorn, *Inorg. Chim. Acta*, **2012**, *391*, 88–92.
22. DNA Cleavage by the Photocontrolled Cooperation of Zn^{II}Centers in an Azobenzene-Linked Dizinc Complex
A. Panja, T. Matsuo, S. Nagao and S. Hirota, *Inorg. Chem.*, **2011**, *50*, 11437–11445.
21. A cyanide-bridged 1-D helical chain involving both four- and six-coordinate nickel(II)

- A. Panja**, *J. Coord. Chem.*, **2011**, *64*, 987-995.
20. Ligand-to-Ligand Electron Transfer and Temperature Induced Valence Tautomerism in *o*-Dioxolene Chelated Mn Complexes
S. Goswami, **A. Panja**,* R. J. Butcher, N. Shaikh and P. Banerjee, *Inorg. Chim. Acta*, **2011**, *370*, 311-321.
 19. Synthesis and characterization of tetrahedrally and octahedrally coordinated mixed valence cobalt(II,III) complex with thiosemicazone based ligand
A. Panja* and D. M. Eichhorn*, *J. Coord. Chem.*, **2009**, *62*, 2600-09.
 18. Iron and Cobalt Complexes of 2,6-Diacetylpyridine-bis(R-thiosemicarbazone) (R=H, phenyl) Showing Unprecedented Ligand Deviation from Planarity
A. Panja, C. Campana, C. Leavitt, M. J. Van Stipdonk, and D. M. Eichhorn, *Inorg. Chim. Acta*, **2009**, *362*, 1348-1354
 17. Syntheses, Crystal Structures, Spectroscopic and Magnetic Properties of $[\text{Mn}_2^{\text{III}}(\text{H}_2\text{L}^1)(\text{Cl}_4\text{Cat})_4 \cdot 2\text{H}_2\text{O}]_{\square}$ and $[\text{Mn}_2^{\text{III}}(\text{H}_2\text{L}^2)(\text{Cl}_4\text{Cat})_4 \cdot 2\text{CH}_3\text{CN} \cdot 2\text{H}_2\text{O}]_{\square}$: Temperature Dependent Valence Tautomerism in Solution
N. Shaikh, S. Goswami, **A. Panja**, H.-L. Sun, F. Pan, S. Gao and P. Banerjee, *Inorg. Chem.* **2005**, *44*, 9714 - 9722
 16. Self-Assembly of Iron and Copper Complexes with Tetradendate- N_4 Ligands to Form Hydrogenbonded Supramolecules of Varied Dimensionalities: Evidence for Host-Guest Properties in a 2D Iron Sheet
A. Panja, S. Goswami, N. Shaikh, P. Roy, M. Manassero, R. J. Butcher and P. Banerjee, *Polyhedron* **2005**, *24*, 2921-2932
 15. A New Route to the Mixed Valence Tetrachlorosemiquinone-Tetrachlorocatecholate Mononuclear Iron(III) and Tetrachlorosemiquinone-Tetrachlorocatecholate Chelated Hydrogen Bonded Dinuclear Mn(III) Complexes: Synthesis, Crystal structures and Magnetic Properties
N. Shaikh, S. Goswami, **A. Panja**, X-Y. Wang, S. Gao, R. J. Butcher, and P. Banerjee, *Inorg. Chem.* **2004**, *43*, 5908-5918
 14. Slow magnetic relaxation in a Mixed-Valence Complex:
 $[\text{Mn}^{\text{II}}_2(\text{bispicen})_2(\text{Cl}_3\text{-Cl})_2\text{Mn}^{\text{III}}(\text{Cl}_4\text{Cat})_2][\text{Mn}^{\text{III}}(\text{Cl}_4\text{Cat})_2(\text{H}_2\text{O})_2]_{\square}$
N. Shaikh, **A. Panja**, S. Goswami, P. Banerjee, P. Vojtisek Y.-Z. Zhang, G. Su and S. Gao, *Inorg. Chem.*, **2004**, *43*, 849-851.
 13. Synthesis, crystal structure and magnetic properties of cyanide bridged 2D coordination polymers $[\text{Mn}(\text{salen})_2][\text{Fe}(\text{CN})_5\text{NO}]$ and $[\text{Mn}(\text{salen})_2][\text{Ni}(\text{CN})_4]$
N. Shaikh, **A. Panja**, S. Goswami, P. Banerjee, M. Kubiak, Z. Ciunik, M. Puchalska, J. Legendziewicz, *Ind. J. Chem. Sec-A*, **2004**, *43A*, 1403-1408
 12. Synthesis, Solution Studies and Structural Characterization of a Mononuclear Ni(II)-Schiff Base Complex Bearing Free Formyl Groups
S. Gupta, **A. Panja**, N. Shaikh, S. Goswami, R. J. Butcher and P. Banerjee, *Ind. J. Chem., Sec-A*, **2004**, *43(1)*, 63-66
 11. Kinetics and Mechanism of Oxidation of 2-Mercaptosuccinic Acid by Bis(\square -oxo) Manganese (III,IV)-Cyclam Complex in Aqueous Medium: Influence of Externally Added Copper(II)
N. Shaikh, **A. Panja** and P. Banerjee, *Int. J. Chem. Kinet.*, **2004**, *36* (3), 170-177.

10. Pyridine-2,6-dicarboxylate and perchlorate bridged hydrogen bonded supramolecular 1D chains involving Mn(III)-cyclam moiety: synthesis, X-ray crystal structure and magnetic study
N. Shaikh, **A. Panja**, P. Banerjee, M. Kubiak, Z. Ciunik, M. Puchalska, J. Legendziewicz and P. Vojtíšek, *Inorg. Chim. Acta*, **2004**, 357, 25-32
9. Mechanistic disparity in electron transfer reactions of thiosulfate with di- \square -oxo-bis(1,4,8,11tetraazacyclotetradecane) dimanganese (III,IV) and di- \square -oxo-bis(1,4,7,10-tetraazacyclododecane) dimanganese (III,IV) complexes
A. Panja, N. Shaikh, B. Saha, P. Banerjee, *Int. J. Chem. Kinet.*, **2004**, 36(2), 119-128
8. A comparative kinetic study for the oxidation of 2-mercaptoethanol by di- \square -oxo-bis(1,4,7,10tetraazacyclododecane) dimanganese (III,IV) and di- \square -oxo-bis(1,4,8,11)tetraazacyclotetradecane)dimanganese(III,IV) complexes: influence of copper(II)
S. Goswami, N. Shaikh, **A. Panja** and P. Banerjee, *Int. J. Chem. Kinet.*, **2004**, 36(2), 129-137
7. Synthesis and characterization of new manganese(III) complexes having N₄O₂ donor sets: study of the x-ray crystal structure of [Mn(5-Br-sal-N-1,4,7,10)]ClO₄ and its electron transfer reactivity with sulfur(IV) – an example of mixed order kinetics
A. Panja, N. Shaikh, Ray J. Butcher and P. Banerjee, *Inorg. Chim. Acta*, **2003**, 351, 27-33.
6. New mononuclear manganese(III) complexes with hexadentate (N₄O₂) Schiff base ligands: synthesis, crystal structure, electrochemistry and electron transfer reactivity towards hydroxylamine
A. Panja, N. Shaikh, S. Gupta, Ray J. Butcher and P. Banerjee, *Eur. J. Inorg. Chem.*, **2003**, 15401547.
5. Structural characterization of a new manganese(III) \square salen complex [H₂salen = N,N'-bis(salicylidene)ethane-1,2-diamine] and study of its electron transfer kinetics with hydroquinone and catechol
A. Panja, N. Shaikh, M. Ali, P. Vojtíšek and P. Banerjee, *Polyhedron*, **2003**, 22, 1191-1198.
4. Oxygenation of 4-*tert*-butylcatechol catalyzed by a manganese(II) complex: implications for extradiol catechol dioxygenases
N. Shaikh, **A. Panja**, M. Ali and P. Banerjee, *Trans. Met. Chem.*, **2003**, 28 (8), 871-880.
3. Kinetic studies on the oxidation of oxalate and malonate by bis(\square -oxo)manganese (III, IV)-cyclam complex
S. Gupta, N. Shaikh, **A. Panja** and P. Banerjee, *J. Ind. Chem. Soc. (Invited)*, **2003**, 80, 545-549.
2. Synthesis, crystal structure and magnetic properties of 1D polymeric [Mn^{III}(salen)N₃] and [Mn^{III}(salen)Ag(CN)₂] complexes
A. Panja, N. Shaikh, P. Vojtíšek, S. Gao and P. Banerjee, *New J. Chem.*, **2002**, 26, 1025.
1. Kinetics of the Oxidation of Some Carboxylates by Tris-(pyridine-2- carboxylato)Manganese(III) in Aqueous Medium
N. Shaikh, M. Ali, **A. Panja** and P. Banerjee, *Inorg. React. Mechanisms*, **2001**, 3, 117.