CV of Dr. Kuntal Pal

➢ **Personal Information:**

Name**: Dr. Kuntal Pal**
Designation: Assistant Professor in Chemistry
Date of Birth: 12th March, 1978
Date of joining: 22/02/2016
Departmental Address: Rashbehari Siksha Prangan (Commonly known as Rajabazar Science College)
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Speciation / major area of research: Inorganic, Bio-inorganic, Organometallic and Computational Chemistry

➢ **Education**

1. B.Sc. in Chemistry (1999) from R. K. Mission Vidyamandira Belurmath, Howrah
2. M.Sc. in Inorganic Chemistry (2001), from University of Calcutta, Kolkata, India
3. Ph.D. in Chemistry (2008) from IIT Kanpur, India

➢ **Professional Experience**

1. 2016 to Till date: **Assistant Professor** in Chemistry at University of Calcutta, Kolkata, India
2. 2015 to 2016: DS Kothari Post doctoral fellow at Jadavpur University, Kolkata, India
3. 2013 to 2015: **Marie-Curie** Experienced researcher at University of Manchester, UK
4. 2012 to 2013: Post-doctoral fellow at T. U. of Kaiserslautern, Germany
5. 2012 to 2012: FCT Post-doctoral fellow at Technical University of Lisbon, Portugal
6. 2011 to 2012: Post-doctoral fellow at Indiana University Bloomington, USA
7. 2008 to 2010: **JSPS Post-doctoral** Fellow at Osaka University, Japan

➢ **Awards and Fellowships**

1. 2015: DS Kothari Post-doctoral fellow at Jadavpur University, Kolkata, India
2. 2013: **Marie-Curie (IIF) International Incoming Fellowship** as Experienced researcher at University of Manchester, UK
3. 2012: Post-doctoral Fellowship at TU Kaiserslautern, Germany.
4. 2012: **FCT** post-doctoral fellowship grant at Lisbon, Portugal.
5. 2010: Postdoctoral fellowship at Indiana University Bloomington, USA
6. 2008- 2010: Postdoctoral fellowship awarded by 'Japan Society for the Promotion of Science' (**JSPS**) at Osaka University, Japan.
7. 2002: Junior Research Fellowship, Sponsored by CSIR, India.
8. 2001: Qualified, Graduate Aptitude Test in Engineering (GATE).

➢ **Research Interest:**

Bioinorganic Chemistry: Artificial enzyme like functional modelling for metalloenzyme such as Nitric oxide reductase, Nitrous oxide reductase, nitrile hydratase

Inorganic, Organometallic and Catalysis: Synthetic functional models for Low temperature water gas shift reaction, CO_2 reduction.

Computational Chemistry: Computational modelling of transition metal catalysed small molecule activation

➢ **Ongoing / completed Research Projects / consultancy Assignments during the Year**

Sl no.	Title	Funding Agency	Date of commencement	Duration	Total Grand (INR)	Status / Remarks
1	Functional models for nitric oxide reductase	DST-SERB, India	Aug, 2016	3 years	27 Lakhs	Completed
2	Computational Probe on the Active Site Functional Models of Thiocyanate Hydrolase	UGC, India	Feb, 2017	2 years	10 Lakh	Completed
3	Functional Models for the Active Site of Nitrile Hydrolase Family	CSIR, India	April, 2019	3 years	NA	On-going

➢ **Publication:**

1. "Metal Ion (NiII vs CoII)−Mediated Unusual Amine−Imine Interconversion in Conjugated Amine-ene-imine Ligand: Synthesis, Structure, and Characterization" J. Bag, S. Barman and **K. Pal*** *Inorg Chem*. **2020**, **ASAP**.
2. **"**A quinoxaline–diaminomaleonitrile conjugate system for colorimetric detection of Cu2+ in 100% aqueous medium: observation of aldehyde to acid transformation" R. Bag, Y. Sikdar, S. Sahu, P. Saha, J. Bag, **K. Pal*** and S. Goswami*, ***Dalton Trans.,* 2019, *48,*** 5656-5664.
3. **"**The Knoevenagel condensation using quinine as an organocatalyst under solvent-free conditions " K. Jain, S. Chaudhuri, **K. Pal** and K. Das, ***New J. Chem.***, **2019,43**, **1299-1304.**
4. "Electron and Oxygen Atom Transfer Chemistry of Co(II) in a Proton Responsive, Redox Active Ligand Environment" B. J. Cook, M. Pink, **K. Pal**, and K. G. Caulton**,** ***Inorg. Chem.*, 2018**, 57 (10), pp 6176–6185,
5. **"**A three-coordinate iron-silylene complex stabilized by ligand-ligand dispersion forces" M. M. Hänninen, **K. Pal**, B. M. Day,. T. Pugh,. R. A. Layfield***, Dalton Trans.,* 2016**, In Press
6. "Iron- and Cobalt-Catalysed Synthesis of Carbene-Phosphinidenes" **K. Pal**, O. B. Hemming, B. M. Day, T. Pugh, D. J. Evans, R. A. Layfield, ***Angew. Chem. Int. Ed*. 2016**, *55*, 1690-1693.
7. "One Electron Reduced Square Planar Bis(benzene-1,2-dithiolato) Copper Dianionic Complex and Redox Switch by O2/HO-" Maiti, B. K., **Pal, K.**; Maia, L. B. ; Avilés, T.; Moura, I.; Pauleta, S. R. , Nuñez, J. L.; Rizzi, A. C.; Brondino, C. D.; Sarkar, S.; Moura, J. J. G., ***Inorg.Chem.*, 2014,** *53*, 12799−12808.
8. "Carbene Rearrangements in Three-coordinate N-Heterocyclic Carbene Complexes of Cobalt(II) Bis(trimethylsilyl)amide" Day, B; **Pal, K**; Pugh, T; Tuck, J; Layfield, R;, ***Inorg. Chem*., 2014,** *53*, 10578−10584.
9. "Mechanistic understanding of a silver pyridylpyrrolide as a catalyst for 3 + 2 cyclization of a nitrile with diazo ester" Flores, J. A.; **Pal, K**.; Carroll, M. E.; Pink, Maren; K., Jonathan A.; Mindiola, D. J.; Caulton, K. G. ***Organometallics***, **2014,** *33*, 1544-1552.
10. "Second order non-linear optical activity of arsenic and antimony dithiolene complexes" Mitra, J.; **Pal, K.;** Sarkar, S. ***Dalton Trans***. **2013,** *42*, 13905-13911.
11. "New Approaches to Functionalizing Metal-Coordinated N2" Andino, J. G.; Mazumder, S.;**Pal, K.**; Caulton, K. G. ***Angew. Chem., Int. Ed*. 2013,** *52*, 4726-4732.
12. "Büchner Reactions Catalyzed by a Silver(I) Pyridylpyrrolide: Understanding Arene C=C Insertion Selectivity" Komine, N., Flores, J. A., **Pal, K**., Caulton, K. G., Mindiola, D. J. ***Organometallics,* 2013,** *32*, 3185-3191.
13. "2,2'-Pyridylpyrrolide Ligand Redistribution Following Reduction" Searles, K.; Das, A. K.; Buell, R. W.; Pink, M.; Chen, C-H.; **Pal, K**.; Morgan, D. G.; Mindiola, D. J.; Caulton, K. G. ***Inorg. Chem*., 2013,** *52*, 5611-5619.
14. "Silver(I) Catalyzed Insertion of Carbene into Alkane C-H Bonds and the Origin of the Special Challenge of Methane Activation Using DFT as a Mechanistic Probe" Flores, J. A., Komine, N., **Pal, K.**, Chen,

Chun-Hsing; Pink, M., Pinter, B., Mindiola, D. J., Caulton, K. G. ***ACS Catalysis*, 2012,** *2*, 2066−2078.

15. "Dianion and Monoanion Ligation of 1,4-Diaza- 1,3-butadiene to Barium, Strontium, and Calcium" Panda,T. K., Kaneko, H., Michel, O., **Pal, K.,** Tsurugi, H., W. Törnroos, K. W., Anwander, R., Mashima, K. ***Organometallics***, **2012,** *31*, 3178-3184.
16. 16. "Synthesis, Structure and DFT Calculation of a Hexanuclear Mixed-Valence Copper Cluster Supported by 2,3-Disulfidobenzoate and 3- Carboxybenzene-1,2-bis(Thiolate)" **Pal, K,** Takamizawa, S., Mashima, K**.** ***Inorg. Chim. Acta,* 2011,** *372*, 68.
17. "Selective Inclusion of DMF Molecules within Non-Covalent Cavity" Maiti, Biplab K., **Pal, K.,** Sarkar, S**. Inorg. Chim. Acta, 2011,** *372*, 213.
18. "Solvent Dependent Cis/Trans Isomerism at the Paddle-wheel Mo2 Core of Linear Tetranuclear Clusters of Mo(II) and Cu(I) Supported by 6- (Diphenylphosphanyl)pyridin-2-olate (pyphos)" **Pal, K.,** Nakao, K., Mashima, K. ***Eur. J. Inorg. Chem***, **2010,** 5568-5574.
19. "Salt Metathesis and Direct Reduction Reactions Leading to Group 3Metal Complexes with a N,N0-Bis(2,6-diisopropylphenyl)-1,4-diaza-1,3- butadiene Ligand and Their Solid-State Structures" Panda, T. K., Kaneko, H.; **Pal, K.,** Tsurugi, H., Mashima, K., ***Organometallics***, **2010,** *29*, 2610–2615.
20. "Highly Reactive Metal-Nitrogen Bond Induced C-H Bond Activation and Azametallacycle Formation" Panda, T. K., Tsurugi, H., **Pal, K.,** Kaneko, H., Mashima, K. ***Organometallics***, **2010,** *29*, 34–37.
21. "1,4-Diaza-1,3-butadiene complexes of lanthanides: syntheses, structures and reactivity." Panda, T. K., **Pal, K.,** Tsurugi, H., Mashima, K. **Kidorui**, **2009,** *54*, 202-203.
22. "Oxygen-Cobalt Chemistry Using a Porphyrinogen Platform". Bhattacharya, D., Maji, S., **Pal, K.,** Sarkar, S. ***Inorg. Chem***. **2009,** *48*, 6362-6370.
23. "Necessity of fine tuning in Mo(IV) bis(dithiolene) complexes to warrant nitrate reduction," Majumdar A, **Pal, K.**, Sarkar S. *Dalton Trans.*, **2009,** 1927–1938.
24. "NO2-Mediated meso-Hydroxylation of Iron(III) Porphyrin" G. J. Abhilash, Bhuyan J., Singh P., Maji S., **Pal, K.,** and Sarkar S. ***Inorg. Chem.*, *2009,* *48*,** 1790-1792.
25. "The Role of Axial Ligation in Dissimilatory Nitrate Reductase: A Model Study by DFT Approach on the Mechanism of Nitrate Reduction." **Pal K.,** Sarkar S**. *Eur. J. Inorg. Chem*, 2008,** 5338–5349.
26. "Formation of Superoxide Anion on Aerial Oxidation of Cu(II) porphyrinogen in the Synthesis of Tetrakis(cyclohexyl)porphyrinogenCu(III) Anion." Bhattacharya D., Maji, S. **Pal, K.,** and Sarkar S**. *Inorg. Chem*. 2008,** *47*, 5036-5038.
27. "Mono-oxo Bis(dithiolene) Mo(IV) / W(IV) Complexes as Building Blocks for Sulfide Bridged Bi and Tri-Nuclear Complexes." Majumdar A., **Pal, K.** and Sarkar S. ***Inorg. Chem*. 2008,** *47*, 5360-5364.
28. "Selectivity of Thiolate Ligand and Preference of Substrate in Model Reactions of Dissimilatory Nitrate Reductase" Majumdar A., **Pal, K.,** and Sarkar S**.,** ***Inorg. Chem.*, 2008,** *47*, 3393-3401.
29. "Plasticity in [(R4-xRI) x=0- 4)4N]4[Cu4{S2C2(CN)2}4] Molded by Guest Cation On Elastic Anionic Host." Maiti B. K. **Pal, K.,** and Sarkar S., ***Eur. J. Inorg. Chem.*, 2008,** *15*, 2407-2420.
30. "Synthesis of β-octabromocalix [4]pyrroles and conformational diversity in their acetone inclusion complexes" Dey S., **Pal, K.,** Sarkar S**. *Tet. Lett.*, 2008,** *49*, 960-964.
31. "Two Enantiomers of [Cu3(mnt)3]3- as Ligands to Cu(I) or Ag(I) in Building [Cu6M2(mnt)6]4- Clusters (M = Cu or Ag) with the Reversal of the Reaction by X- (X = Cl, Br)." Maiti B. K., **Pal, K.** Sarkar S. ***Dalton Trans.*, 2008,** 1003 – 1008.
32. "Flexible Cu(I)-thiolate Clusters in Relevance to Metallothioneins " Maiti B. K., **Pal, K.,** Sarkar S**.,** ***Eur. J. Inorg. Chem.*, 2007,** 5548- 5555.
33. "Synthesis, Structure and DFT-TDDFT Study of Diimido-bridged Asymmetric Dimolybdenum Complex." **Pal, K.,** Sarkar S. ***Eur. J. Inorg. Chem*. 2007,** 5333-5346.
34. "The Structure of the Michaelis Complex and Function of the Catalytic Center in the Reductive Half-Reaction of Computational and Synthetic Models of Sulfite Oxidase" **Pal, K.,** Chaudhury P. K., Sarkar S. ***Chem. Asian. J.* 2007,** *2*, 956-964.
35. "Thermally induced reversible conformational changes in the host-guest adduct of meso-tetramethyltetrakis(ethyl) calix[4]pyrrol" Dey S., **Pal, K.,**, Sarkar S. ***Tet. lett.* 2007,** *48*, 5481-5485.
36. "Desoxo Molybdenum(IV) and Tungsten(IV) bis(dithiolene) Complexes: Monomer-Dimer Interconversion involving Reversible Thiol Bridge Formation." Majumdar A., **Pal , K.**, Nagarajan K., Sarkar S**.** ***Inorg. Chem*. 2007,** *46*, 6136-6147.
37. "Synthesis, structure and reactions of a series of 1,2-dicyanoethylenedithiolate coordinated dimeric Mo(V)

complexes." **Pal, K.,** Maiti R., Chaudhury P. K., Sarkar S., ***Inorg. Chim. Acta,*** **2007,** 2721-2733.

38. "An efficient and eco-friendly protocol to synthesize calix[4]pyrroles" Dey S., **Pal, K.,** Sarkar S**.** ***Tet. lett.*** **2006,** *47,* 5851-5854.
39. "Chemistry of [Et4N][MoIV(SPh)(PPh3)(mnt)2] as an Analogue of Dissimilatory Nitrate Reductase with Its Inactivation on Substitution of Thiolate by Chloride" Majumdar A. **Pal , K.,** Sarkar S., ***J. Am. Chem. Soc***. **2006,** *128,* 4196 -4197.
40. "Direct Incorporation of a Ferric Ion in the Porphyrinogen Core: Tetrakis(cyclohexyl)iron Porphyrinogen Anion with Different Conformers and Its Reaction with Iodine" Bhattacharya D., Dey S., Maji S., **Pal, K.,** and Sarkar S. ***Inorg. Chem***. **2005,** *44,* 7699-7701.
41. "Reversible Penta- and Hexacoordination Motifs in [Co(TMPP)] Resulting in Interchange of 1D and 2D Supramolecular Designs" Maji S., Kumar A., **Pal, K.,** Sarkar S., ***Inorg. Chem***. **2005,** *44,* 7277-7279.
42. "A structural model of mixed metal sulfide cluster of molybdenum and copper present in the orange protein of Desulfovibrio gigas" Maiti B. K., **Pal, K.,** Sarkar S**.,** ***Inorg. Chem. Commun***. **2004,** *7,* 1027-1029.
43. "Structural and Functional Analogue of the Active Site of Polysulfide Reductase from Wolinella succinogenes" Nagarajan K., Joshi H. K., Chaudhury P. K, **Pal, K.,** Cooney J. J. A., Enemark J. H., Sarkar S. ***Inorg. Chem***. **2004,** *43,* 4532-4533.