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Dr. Purak Das joined Department of Chemistry, Rishi Bankim Chandra College for Women in the year 2015 as an Assistant Professor. He obtained B.Sc. and M.Sc. from the University of North Bengal. His doctoral research is on "*Aryl Azene Oxides: Synthesis, Structure and Mesogenic Behaviour*" and was awarded Ph.D. degree by the University of North Bengal in 2007. He went to Missouri University of Science and Technology, USA for his Postdoctoral work in 2009.

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Patent:

1. *High temperature liquid crystalline azoxy compounds and method of preparation*; **Purak Das**, A.N. Biswas, P.K. Mandal and P. Bandyopadhyay, **Indian Pat. No. 277274**, Date of Grant 16th November, 2016.

Publications:

1. *Synthesis, structural Characterization, DNA binding ability and luminescent sensing of nitroaromatics by a mononuclear Zinc(II) carboxylate complex*; **Purak Das**, S. Das and A. Dutta, **Z. Kristallogr.** (2024) 239(9–10), 339–343.
2. *Synthesis, structural Characterization, DNA binding ability and luminescent sensing of nitroaromatics by a mononuclear Zinc(II) carboxylate complex*; S.R. Boruah, R.N. Dutta Purkayastha, S. Chowdhury, **Purak Das**, R.M. Gomila, A. Frontera, **Inorg. Chim. Acta** (2024), 572, 122247.
3. *Exploitation of ninhydrin core towards spiro pyranocoumarin and benzofuranyl coumarin: Synthesis, crystal structure and self-assembly*; S. Das, **Purak Das**, S. Maity, P Ghosh and A. Dutta, **J. Mol. Struct.** (2024), 1318, 139185.
4. *Novel bioinspired dinuclear Cu(II) 'paddle wheel' acetate complex: Catalytic and in vitro biological activity studies*; S. Reja, K. Sarkar, D. Mukherjee, S. Guha, S. Ghosh, T. Saha, P. Kumar, **Purak Das** and R.K. Das, **J. Mol. Struct.** (2024), 1300, 137263.

5. *Helical self-assembly of an unusual pseudopeptide: crystallographic evidence*; A. Dutta, S. Das and **Purak Das**, *Z. Kristallogr.* (2022) 237(1–3), 77–81.
6. *Synthesis, Crystal structure, Hirshfeld surface, and DFT studies of a Copper(II) complex of 5,5'-dimethyl-2,2'-bipyridine and 1,2,2-trimethylcyclopentane-1,3-dicarboxylic acid*; V.K. Dakua, A. Datta, D. Roy, D. Biswas, B. Ghosh, K. Roy, S. Paul, **Purak Das**, S. Mishra, B. Sinha, M. Das, S. Barman and M.N. Roy, *Results in Chemistry*, (2023), 6, 101050.
7. *Synthesis, Crystal Structure, Hirshfeld Surface Analysis and Catalytic Activity of New Cobalt (II) complex of 4-Nitrobenzoic Acid and 1-Methylimidazole*; S. Tamang, P. Rai, S. Chettri, K. Pradhan, B. Sinha, **Purak Das** and D Brahman, *J. Mol. Struct.* (2023), 1291, 136072.
8. *Mechanochemical reaction of ninhydrin with aromatics, enols and amines: Synthesis, crystal structure and supramolecular self-assembly of cyclic and acyclic adducts*; S. Das, **Purak Das**, S. Maity, P. Ghosh and A. Dutta, *Results in Chemistry*, (2023), 5, 100713.
9. *3,3'-[succinylbis(diazaneyl)]bis(N,N,N-trimethylpropan-1-ammonium) perchlorate: Synthesis, characteri-zation, computational studies and in vitro anticancer activity against the human colon carci-noma cell line (HT-29)*; S. Reja, K. Sarkar, D. Mukherjee, T.K.S. Fayaz, P. Kumar, **Purak Das**, P. Sanphui and R.K. Das, *J. Mol. Struct.* 2023, **1273**, 134377.
10. *Synthesis, crystal structure and self-assembly of novel ninhydrin-derived isoquinoline compounds*; **Purak Das**, S. Maity, P. Ghosh, A. Dutta and S. Das, *J. Mol. Struct.*, 2022, **1265**, 133352.
11. *In vitro cytotoxicity activity of copper complexes of imine and amine ligands: A combined experimental and computational study*; D. Mukherjee, S. Reja, K. Sarkar, T.K.S. Fayaz, P. Kumar, A. Kejriwal, **Purak Das**, P. Sanphui and R.K. Das, *Inorg. Chem. Commun.*, 2022, **146**, 110190.
12. *Unique supramolecular assembly of a synthetic achiral α , γ -hybrid tripeptide*; A. Dutta, S. Das, **Purak Das**, S. Maity, P. Ghosh and S.S. Biswas, *Z. Kristallogr.*, 2022, **237**(1–3), 77–81.
13. *Is the Electrophilicity of the Metal Nitrene the Sole Predictor of Metal-Mediated Nitrene Transfer to Olefins? Secondary Contributing Factors as Revealed by a Library of High-Spin Co(II) Reagents*; A. Kalra, V. Bagchi, P.Paraskevopoulou, **Purak Das**, L. Ai, Y. Sanakis, G. Raptopoulos, S. Mohapatra, A. Choudhury, Z. Sun, T.R. Cundari and P. Stavropoulos, *Organometallics*, 2021, **40**(12), 1974-1996.
14. *3-(1,3-Dioxoisindolin-2-yl)-N,N-dimethylpropan-1-ammonium perchlorate: Synthesis, crystal structure, docking study and in vitro anticancer activity against the human hepatomas cell line (Hep G2)*; S. Reja, D. Mukherjee, **Purak Das**, P. Kumar and R.K. Das, *J. Mol. Struct.*, 2021, **1245**, 131006.
15. *Solid state self-assembly and morphology of a rigid non-coded γ -amino acid inserted tripeptide*; A. Dutta, S. Das, **Purak Das**, S. Maity and P. Ghosh, *Z. Kristallogr.*, 2021, **236**, 123-127.
16. *Supramolecular self-assembly of structurally diversified ninhydrin-based molecules*; S. Das, **Purak Das**, S. Maity, P. Ghosh, A. Dutta, *J. Mol. Struct.*, 2021, **1224**, 129033.
17. *Oxygen Reduction Assisted by the Concert of Redox Activity and Proton Relay in a Cu(II) Complex*; S.N. Chowdhury, S. Biswas, **Purak Das**, S. Paul and A.N. Biswas, *Inorg.*

- Chem.*, 2020, **59**(19), 14012-14022.
18. Redox-active ligand assisted electrocatalytic water oxidation by a mononuclear cobalt complex; S. Biswas, S. Bose, J. Debgupta, **Purak Das** and A.N. Biswas, *Dalton Transactions*, 2020, **49**, 7155-7165.
 19. Fibril formation through self-assembly of a simple glycine derivative and X-ray diffraction study; A. Dutta, S. Das, **Purak Das**, S. Maity and P. Ghosh, *Z. Kristallogr.*, 2020, **235**(1-2), 47-51.
 20. Condensation of ninhydrin with phenols: Regioselective formation of diverse organic scaffolds and crystal structure studies; **Purak Das**, S. Maity, P. Ghosh, A. Dutta and S. Das, *J. Mol. Struct.*, 2020, **1202**, 127260.
 21. Synthesis, Characterization and Molecular Structure of Iron(III) Complex with Tridentate Diazene Ligand Having O,N,S Donor Set: Coexistence of Octahedral and Tetrahedral Iron(III) Sites in the Asymmetric Unit; **Purak Das** and A.N. Biswas, *Journal of Chemical Crystallography*, 2020, **50**, 147-154.
 22. Synthesis, structures and catalase activities of bis(μ -oxo)diMn^{III,III} and bis(μ -acetato)diMn^{III,II} complexes bearing a quinoyl donor tripod ligand; S. Biswas, **Purak Das**, S. Rasaily, A. Pariyar and A.N. Biswas, *Inorganica Chimica Acta*, 2019, **492**, 76-82.
 23. Comparative Nitrene-Transfer Chemistry to Olefinic Substrates Mediated by a Library of Anionic Mn(II) Triphenylamido-Amine Reagents and M(II) Congeners (M = Fe, Co, Ni) Favoring Aromatic over Aliphatic Alkenes; V. Bagchi, A. Karla, **Purak Das**, P. Paraskevopoulou, S. Gorla, L. Ai, Q. Wang, S. Mohapatra, A. Choudhury, Z. Sun, T. R. Cundari and P. Stavropoulos, *ACS Catalysis*, 2018, **8**, 9183-9206.
 24. Benzimidazole-based polyheterocycles from ninhydrin: Synthesis, X-ray crystal structure and photophysical property; S. Das, **Purak Das**, S. Maity, P. Ghosh, B.K. Paul and A. Dutta, *J. Mol. Struct.*, 2018, **1168**, 234-241.
 25. Alkyl-sulfur versus aryl-sulfur bond cleavage in tridentate alkylthiophenylazo-naphthols by group 9 metal ions; S. Acharya, P. Bandyopadhyay, **Purak Das**, S. Biswas and A.N. Biswas, *J. Organomet. Chem.*, 2018, **866**, 13-20.
 26. Role of auxiliary donors in tuning the selectivity of C-H activation in arylazonaphthalenes by palladium(II) : Isolation and photoisomerization of isomeric cyclopalladates; D.N. Neogi, S.S. Chhetri, **Purak Das**, A.N. Biswas, A. Choudhury and P. Bandyopadhyay, *J. Indian Chem. Soc.*, 2015, **92**, 1783-1790.
 27. A Versatile Tripodal Cu(I) Reagent for C-N Bond Construction via Nitrene-Transfer Chemistry: Catalytic Perspectives and Mechanistic Insights on C-H Aminations/Amidinations and Olefin Aziridinations; V. Bagchi, P. Paraskevopoulou, **Purak Das**, L. Chi, Q. Wang, A. Choudhury, J. S Mathieson, L. Cronin, D. B Pardue, T. R Cundari, G. Mitrikas, Y. Sanakis and P. Stavropoulos, *J. Am. Chem. Soc.*, 2014, **136**, 11362-11381.
 28. Regioselective and regiospecific C(naphthyl)-H bond activation: Isolation, characterization, crystal structure and TDDFT study of isomeric cyclopalladates; A.N. Biswas, D.N. Neogi, **Purak Das**, A. Choudhury and P. Bandyopadhyay, *J. Organomet. Chem.*, 2014, **761**, 147-155.
 29. Synthesis and characterization of a family of Co(II) triphenylamido-amine complexes and catalytic activity in controlled radical polymerization of olefins; V. Bagchi, G. Raptopoulos, **Purak Das**, S. Christodoulou, Q. Wang, L. Ai, A. Choudhury, M. Pitsikalis, P. Paraskevopoulou and P. Stavropoulos, *Polyhedron*, 2013, **52**, 78-90.

30. *Catalytic hydrocarbon oxidation by iron complex of 5,10,15-tris(difluorophenyl)-corrole via activation of hydroperoxides*; A. Pariyar, S. Bose, A.N. Biswas, **Purak Das** and P. Bandyopadhyay, *Catalysis Communications*, 2013, **32**, 23-27.
31. *Regiospecific C(naphthyl)-H bond activation by platinum(II): Isolation, characterization, reactivity and TD-DFT study of the platinum(II) and platinum(IV) organometallates having [C,N,S] donor set*; D.N. Neogi, A.N. Biswas, **Purak Das**, R. Bhawmick and P. Bandyopadhyay, *J. Organomet. Chem.*, 2013, **724**, 147-154.
32. *Synthesis, characterization, X-ray structure and spectroscopic study of platinum(II) complexes with tridentate diazene ligands having O,N,S donor set*; S. Acharya, A. Kejriwal, A.N. Biswas, **Purak Das**, D.N. Neogi and P. Bandyopadhyay, *Inorganica Chimica Acta*, 2013, **394**, 757-764.
33. *Palladium(II) complexes of terdentate azo ligands with an O,N,S donor set: Synthesis, spectroscopic characterization, X-ray structure and TD-DFT calculations*; S. Acharya, A. Kejriwal, A.N. Biswas, **Purak Das**, D.N. Neogi and P. Bandyopadhyay, *Polyhedron*, 2012, **38**, 50-57.
34. *C(Naphthyl)-H Bond Activation by Rhodium: Isolation, Characterization and TD-DFT Study of the Cyclometallates*; A.N. Biswas, **Purak Das**, S. Sengupta, A. Choudhury and P. Bandyopadhyay, *RSC Advances*, 2011, **1**, 1279-1286.
35. *Regiospecific C(naphthyl)-H Bond Activation by Platinum(II)-Isolation, Characterization, Reactivity and TD-DFT Study of the Cycloplatinates Complexes*; A.N. Biswas, **Purak Das**, V. Bagchi, A. Choudhury and P. Bandyopadhyay, *European Journal of Inorganic Chemistry*, 2011, 3739-3748.
36. *Electron deficient manganese(III) corrole catalyzed oxidation of alkanes and alkylbenzenes at room temperature*; S. Bose, A. Pariyar, A.N. Biswas, **Purak Das** and P. Bandyopadhyay, *Catalysis Communications*, 2011, **12**(13), 1193-1197.
37. *Manganese(III) corrole catalyzed selective oxidation of alcohols to carbonyl compounds by tert-butyl hydroperoxide under mild condition*; S. Bose, A. Pariyar, A.N. Biswas, **Purak Das** and P. Bandyopadhyay, *Catalysis Communications*, 2011, **12**(6), 446-449.
38. *1-Phenyldiazenyl-8-Phenylhydrazononaphthalene-7(8H)-One-2-ol: Co-Existence of Azo-Hydroxy and Hydrazo-Keto Forms*; **Purak Das** and A.N. Biswas, *Journal of Chemical Crystallography*, 2010, **40**(12), 1167-1169.
39. *Synthesis and characterization of a series of structurally and electronically diverse Fe(II) complexes featuring a family of triphenylamido-amine ligands*; P. Paraskevopoulou, L. Ai, Q. Wang, D. Pinnareddy, R. Acharyya, R. Dinda, **Purak Das**, R. Celenligil-Cetin, G. Floros, Y. Sanakis, A. Choudhury, N. P Rath and P. Stavropoulos, *Inorg. Chem.*, 2010, **49**(1), 108-122.
40. *Mild oxidation of hydrocarbons by tert-butyl hydroperoxide catalyzed by electron deficient manganese(III) corroles*; S. Bose, A. Pariyar, A.N. Biswas, **Purak Das** and P. Bandyopadhyay, *Journal of Molecular Catalysis A*, 2010, **332**(1-2), 1-6.
41. *Chiral Mn(III) salen catalyzed oxidation of hydrocarbons*; A.N. Biswas, **Purak Das**, S.K. Kandar, A. Agarwala, D. Bandyopadhyay and P. Bandyopadhyay, *Transition Metal Chemistry*, 2010, **35**(5), 527-530.
42. *Selective hydroxylation of alkanes catalyzed by iron(IV) corrole*; A.N. Biswas, **Purak Das**, A. Agarwala, D. Bandyopadhyay and P. Bandyopadhyay, *Journal of Molecular Catalysis A*, 2010, **326**(1-2), 94-98.
43. *Mild oxidation of hydrocarbons catalyzed by iron corrole with tert-butyl hydroperoxide*;

- A.N. Biswas, A. Pariyar, S. Bose, **Purak Das** and P. Bandyopadhyay, *Catalysis Communications*, 2010, **11**(12), 1008-1011.
44. *Chiral iron(III)-salen-catalyzed oxidation of hydrocarbons*; A.N. Biswas, **Purak Das**, S.K. Kandar, A. Agarwala, D. Bandyopadhyay and P. Bandyopadhyay, *Catalysis Communications*, 2009, **10**(5), 708-711.
45. *Structure of Liquid Crystalline 1-Phenyl-3-{4-[4-(4-octyloxybenzoyloxy)phenyloxycarbonyl]phenyl}triazene-1-oxide at Low Temperature*; **Purak Das**, A.N. Biswas, S. Acharya, A. Choudhury, P. Bandyopadhyay, P.K. Mandal and S. Upreti, *Molecular Crystals and Liquid Crystals*, 2009, **501**, 53-61.
46. *Synthesis and Liquid Crystalline Properties of Novel Triazene-1-oxide Derivatives*; **Purak Das**, A.N. Biswas, P. Bandyopadhyay and P.K. Mandal, *Molecular Crystals and Liquid Crystals*, 2008, **490**, 3-15.
47. *Liquid crystalline aryltriazene-1-oxides with two ester units: synthesis, characterisation, structure and thermal properties*; **Purak Das**, A.N. Biswas, S. Acharya, A. Choudhury, P. Bandyopadhyay and P.K. Mandal, *Liquid Crystals*, 2008, **35**(7), 895-903.
48. *Novel synthetic route to liquid crystalline 4,4'-bis(n-alkoxy)azoxybenzenes: spectral characterisation, mesogenic behaviour and crystal structure of two new members*; **Purak Das**, A.N. Biswas, A. Choudhury, P. Bandyopadhyay, S. Haldar, P.K. Mandal and S. Upreti, *Liquid Crystals*, 2008, **35**(5), 541-548.
49. *1-Phenyl-3-{4-[4-(4-undecyloxybenzoyloxy) phenyloxy carbonyl] phenyl} triazene-1-oxide*; **Purak Das**, A.N. Biswas, S. Upreti, P.K. Mandal and P. Bandyopadhyay, *Acta Crystallographica, Section E*, 2008, **E64**(4), o676.
50. *4,4'-Bis[2-(benzylsulfanyl)phenylhydrazono]-2,2'-binaphthalene-1,1'(4H,4'H)-dione*; A.N. Biswas, **Purak Das**, D.N. Neogi, R. Bhawmick and P. Bandyopadhyay, *Acta Crystallographica, Section E*, 2007, **E63**(12), o4554.
51. Chlorido{1-[2-(ethylsulfonyl)phenyldiazenyl]-4-methoxy-2-naphthyl- κ^3 C,N,O} palladium(II)sesquihydrate; S.S. Chhetri, A.N. Biswas, **Purak Das**, A. Saha and P. Bandyopadhyay, *Acta Crystallographica, Section E*, 2007, **E63**(12), m2973-2974.
52. Chlorido{1-[2-(methylsulfanyl)phenyldiazenyl] naphtholato- κ^3 O,N,S} nickel (II); **Purak Das** and A.N. Biswas, *Acta Crystallographica, Section E*, 2007, **E63**(11), m2740.
53. Di- μ -iodido-bis[iodido(triphenylphosphine- κ P)platinum(II)]; A.N. Biswas, V. Bagchi **Purak Das** and P. Bandyopadhyay, *Acta Crystallographica, Section E*, 2007, **E63**(11), m2836.
54. Chlorido{4-chloro-1-[2-(methylsulfanyl)phenyldiazenyl] phenyl- κ^3 C,N,S} palladium (II): a second polymorph; V. Bagchi, **Purak Das** and D. Bandyopadhyay *Acta Crystallographica, Section E*, 2007, **E63**(8), m2130.
55. (E)-4-{[2-(Methylsulfanyl)phenyl]diazenyl}phenol; A.N. Biswas, **Purak Das**, U.S. Agarwalla, A. Saha and P. Bandyopadhyay, *Acta Crystallographica, Section E*, 2007, **E63**(7), o3114.
56. Trichlorido{1-[2-(methylsulfanyl)phenyldiazenyl]phenyl- κ^3 C,N,S}platinum(IV); V. Bagchi, **Purak Das** and D. Bandyopadhyay *Acta Crystallographica, Section E*, 2007, **E63**(7), m1940.
57. Chlorido{4-chloro-1-[2-(methylsulfanyl)phenyldiazenyl]phenyl- κ^3 C,N,S}palladium-(II); V. Bagchi, **Purak Das** and D. Bandyopadhyay *Acta Crystallographica, Section E*, 2007, **E63**(6), m1704.
58. *Regiospecific C(naphthyl)-H bond activation: Isolation and characterization of*

- cyclopalladates; D.N. Neogi, A.N. Biswas, **Purak Das**, R. Bhawmick and P. Bandyopadhyay, *Inorganica Chimica Acta*, 2007, **360**(6), 2181-2186.
59. (*E*)-1-[2-(Benzylsulfanyl)phenyldiazenyl]-4-methoxynaphthalene; **Purak Das**, A.N. Biswas, D.N. Neogi, R. Bhawmick and P. Bandyopadhyay, *Acta Crystallographica, Section E*, 2006, **E62**(12), o5536-5538.
60. Regiospecific cyclometalation: Synthesis, spectral properties and crystal structure of *peri*-palladate; D.N. Neogi, **Purak Das**, A.N. Biswas and P. Bandyopadhyay, *Polyhedron*, 2006, **25**(10), 2149-2152.
61. β -Diketonates of Cyclopalladated Arylazonaphthalenes: Synthesis, Characterization and Redox Activity; R. Bhawmick, **Purak Das**, S. Acharya, A.N. Biswas and P. Bandyopadhyay, *Transition Metal Chemistry*, 2006, **31**(4), 495-499.
62. Metaloxylation of cyclopalladated 1-(1'-naphthylazo)naphthalene complexes by *m*-chloroperbenzoic acid: Oxygen insertion into metal-carbon(naphthyl) bond; R. Bhawmick, **Purak Das**, D.N. Neogi and P. Bandyopadhyay, *Polyhedron*, 2006, **25**(5), 1177-1181.
63. Bis[4-(*n*-octyloxy)phenyl]diazene oxide; **Purak Das**, D.N. Neogi, S. Upreti, P.K. Mandal and P. Bandyopadhyay, *Acta Crystallographica, Section E*, 2005, **E61**(11), o3602-3604.