CURRICULUM VITAE

Dr. SUKANTA MANDAL
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Academic Position Hold

(iii) Assistant Professor (from 18th February, 2015 to Till date): Department of Chemistry, Indian Institute of Technology Kharagpur

(ii) Assistant Professor (from 1st December, 2014 to 30th January, 2015): Department of Chemistry, National Institute of Technology Patna

(i) DST-INSPIRE Faculty (from 20th August, 2013 to 31st October, 2014): Department of Chemistry, Assam University, Silchar

Broad Areas of Research

Synthetic Bio-inorganic Model Chemistry; Bio-inspired Redox Catalysis Using Transition Metal Complexes; Water Splitting Chemistry Towards Artificial Photosynthesis; Coordination Chemistry

Academic Qualifications

Dec. 2003–Jan. 2009 (Awarded May 2009)	Ph.D., Indian Institute of Technology, Kanpur, India Supervisor: Prof. Rabindranath Mukherjee **Thesis Title**: "*Bio-Inspired Coordination Chemistry of Dinuclear Manganese, Nickel and Copper Complexes*"
2001–2003	M.Sc., Specialization in Inorganic Chemistry (First Class), The University of Burdwan, West Bengal, India
1998–2001	B.Sc. in Chemistry (First Class Honors), The University of Burdwan, West Bengal, India
1996–1998	Higher Secondary (First Division), West Bengal Council of Higher Secondary Education
1994–1996	Secondary Examination (First Division), West Bengal Board of Secondary Education

Post-Doctoral Research Experience

Oct. 2011– July 2013	Post-doctoral Research Associate Supervisors: Prof. Antoni Llobet, Prof. Shunichi Fukuzumi, Prof. Wonwoo Nam (World Class University Research Program), Ewha Womans University, Seoul 120-750, South Korea.
June 2009–Aug. 2011	Post-doctoral Research Associate Supervisor: Prof. Antoni Llobet Institute of Chemical Research of Catalonia (ICIQ), Av. Paisos Catalans 16, E- 43007, Tarragona, Spain.

Academic Visit

Oct. 01–Nov. 15, 2007	Visiting Researcher at Department of Chemistry, Lund University, Sweden. This visit was graphed as planning grant for collaborative research project between Prof. E. Nordlander (Lund University) and Prof. R. N. Mukherjee (IIT Kanpur).

Academic Awards/Fellowships/Scholarships

2012	DST-Inspire Faculty Award Fellowship
Oct. 2011–July 2013	World Class University (WCU) Program Post-doctoral Fellowship in Prof. W. Nam's research group, Ewha Womans University, Seoul, South Korea
June 2009–Aug 2011	Post-doctoral Fellowship (SOLAR-H2) in Prof. A. Llobet´s research group, ICIQ, Tarragona, Spain
2006	Senior Research Fellowship (SRF) from the CSIR, Govt. of India
2003	Junior Research Fellowship (JRF) from the CSIR, Govt. of India to pursue Ph.D.
2003	Graduate Aptitude Test in Engineering (GATE) from IITs, India
2001	National Scholarship (Govt. of India) on the basis of B.Sc. results
1998	National Scholarship (Govt. of India) on the basis of H.S. results

Teaching Experience

- **Courses Taught at Assam University, Silchar:** (i) *Environmental Pollution and Bioinorganic Chemistry* (CH101 Unit-IV) (ii) *Infra-red Spectra* (CH203 Unit-II) (iii) *Magnetic Resonance* (CH203 Unit-IV/V) (d) *Chemical Kinetics* (CH103 Unit IV)
- **Major Courses Taught/Teaching at IIT Kharagpur:** (i) Inorganic Chemistry I (CY20105) (ii) Inorganic Chemistry II (CY20106) (iii) Chemistry Lab (CY19001) (iv) Advanced Inorganic Chemistry Lab (CY49001)
- **"Moodle" video for Chemistry Lab (CY19001) (Inorg. Expt)**

Departmental Activity

- In charge of NMR instruments (200 & 400 MHz), Department of Chemistry, IIT Kharagpur
- In charge of CHN Analyzer, Department of Chemistry, IIT Kharagpur
- Tender & Purchase committee member for laboratory furniture for newly constructed Chemistry Department in J. C. Ghosh and A. P. C. Roy science block.

Seminar / Conference / Workshop Organized

(1) NMRS-2016, IIT Kharagpur (Part of Organizing Committee) Participants: 250

Guidance

- **Ph.D. Students (on going):** (i) Mr. Animesh Kundu (ii) Mr. Subhasis Dey (iii) Mr. Nirmalya Podder (iv) Mr. Mofijul Molla
- **Master Students:** 2015-16 session: (i) Mr. Mofijul Molla (ii) Mr. Rahul Naskar
  2016-17 session: (i) Mr.Chiranjit Dutta (ii) Mr. B. Sreeram Praneeth

Sponsored Research Project

(1) "Development of Artificial Photo System II: Water Oxidation Catalyst" (DST-Inspire Faculty Award, Rs. 35.00 Lakhs, 2013-18) PI: Dr. Sukanta Mandal.

(2) "Design and Synthesis of Molecular Catalyst for Water Oxidation Reactions Based on Transition Metals" (ISIRD, SRIC, IIT Kharagpur, Rs. 28.00 Lakhs, 2015-18) PI: Dr. Sukanta Mandal

(3) "Syntheses, Characterizations and Reactivity Aspects of Metal(III)-Hydroxo Complexes: Biomimetic Model of Lipoxygenase-like Activity" (SERB, DST, New Delhi), Rs. 33.90 Lakhs, 2015-18) PI: Dr. Sukanta Mandal.

Publications in Peer-reviewed Journals

(13) Lorenzo Mognon, **Sukanta Mandal**, Carmen E. Castillo, Jerome Fortage, Florian Molton, Guillem Aromi, Jordi Benet-Buchhlolz, Marie-Noelle Collomb and Antoni Llobet, "Synthesis, Structure, Spectroscopy and Reactivity of New Heterotrinuclear Water Oxidation Catalysts" *Chemical Science*, **2016**, *7*, 3304 - 3312 . (Impact Factor = 9.211)

(12) **Sukanta Mandal**, Shinya Shikano, Yusuke Yamada, Yong-Min Lee, Wonwoo Nam, Antoni Llobet and Shunichi Fukuzumi, "Protonation Equilibrium and Hydrogen Production by a Dinuclear Cobalt-Hydride Complex Reduced by Cobaltocene with Trifluoroacetic Acid", *J. Am. Chem. Soc.* **2013**, *135,* 15294 - 15297. (Impact Factor = 10.677)

(11) Dachao Hong,[†] **Sukanta Mandal**,[†] Yusuke Yamada, Yong-Min Lee, Wonwoo Nam, Antoni Llobet and Shunichi Fukuzumi, "Water Oxidation Catalysis with Nonheme Iron Complexes under Acidic and Basic Conditions: Homogeneous or Heterogeneous?", *Inorg. Chem.* **2013***, 52,* 9522–9531 ([†]*Equal Contribution*). (Impact Factor = 4.593)

(10) **Sukanta Mandal**, Jhumpa Mukherjee, Francese Lloret, and Rabindranath Mukherjee, "Modeling Tyrosinase and Catecholase Activity Using New *m*-Xylyl Based Ligands with Bidentate Alkylamine Terminal Coordination", *Inorg. Chem.* **2012**, *51*, 13148–13161. (Impact Factor = 4.593)

(9) Matthew L. Rigsby, **Sukanta Mandal**, Wonwoo Nam, Lara C. Spencer, Antoni Llobet and Shannon S. Stahl, "Cobalt Analogs of Ru-Based Water Oxidation Catalysts: Overcoming Thermodynamic Instability and Kinetic Lability to Achieve Electrocatalytic O_2 Evolution", *Chem. Sci.* **2012**, *3*, 3058–3062. (Impact Factor = 8.314)

(8) Shunichi Fukuzumi, **Sukanta Mandal**, Kentaro Mase, Kei Ohkubo, Hyejin Park, Jordi Benet-Buchholz, Wonwoo Nam and Antoni Llobet, "Catalytic Four-Electron Reduction of O_2 via Rate-Determining Proton-Coupled Electron Transfer to a Dinuclear Cobalt-μ-1,2-peroxo Complex", *J. Am. Chem. Soc.* **2012**, *134*, 9906–9909. (Impact Factor = 10.677)

(7) Lele Duan, Fernando Bozoglian, **Sukanta Mandal**, Beverly Stewart, Timofei Privalov, Antoni Llobet and Licheng Sun, "A Molecular Ruthenium Catalyst With Water-Oxidation Activity Comparable to that of Photosystem II", *Nat. Chem.* **2012**, *4*, 418–423. (Impact Factor = 21.757)

(6) Arnau Arbuse, **Sukanta Mandal**, Somnath Maji, Ma Angeles Martinez, Xavier Fontrodona, Diana Utz, Frank W. Heinemann, Sandra Kisslinger, Siegfried Schindler, Xavier Sala and Antoni Llobet, "Ligand Influence over the Formation of Dinuclear [2+2] versus Trinuclear [3+3] Cu^{I} Schiff Base Macrocyclic Complexes", *Inorg. Chem.* **2011**, *50*, 6878–6889. (Impact Factor = 4.593)

(5) **Sukanta Mandal**, V. Balamurugan, Francesc Lloret and Rabindranath Mukherjee, "Syntheses, X-ray Structures, and Physicochemical Properties of Phenoxo-Bridged Dinuclear Nickel(II) Complexes: Kinetics of Transesterification of 2-Hydroxypropyl-*p*-nitrophenyl phosphate", *Inorg. Chem*. **2009**, *48*, 7544–7556. (Impact Factor = 4.593)

(4) **Sukanta Mandal**, Francesc Lloret and Rabindranath Mukherjee, "Discrete and 1D Coordination Polymeric Chloro-Bridged Copper(II) Dimers Exhibiting Ferro- and Antiferromagnetic Exchange Coupling: Magneto-Structural Correlations and Non-Covalent Interactions", *Inorg. Chim. Acta*. **2009**, *362*, 27–37. (Impact Factor = 1.687)

(3) **Sukanta Mandal**, Anindita De and Rabindranath Mukherjee, "Formation of $\{Cu^{III}_2(\mu\text{-}O)_2\}^{2+}$ Core Due to Dioxygen Reactivity of a Copper(I) Complex Supported by a New Hybrid Tridentate Ligand: Reaction with Exogenous Substrates", *Chemistry & Biodiversity* **2008**, *5*, 1594–1608. (Impact Factor = 1.808)

(2) Anindita De, **Sukanta Mandal** and Rabindranath Mukherjee, "Modeling Tyrosinase Activity. Effect of Ligand Topology on Aromatic Ring Hydroxylation: An Overview", *J. Inorg. Biochem*. **2008**, *102*, 1170–1189. (Impact Factor = 3.197)

(1) **Sukanta Mandal** and Rabindranath Mukherjee, "A New Tyrosinase Model With 1,3-bis[(2-dimethylaminoethyl)iminomethyl]benzene: Binuclear Copper(I) and Phenoxo/Hydroxo-Bridged Dicopper(II) Complexes", *Inorg. Chim. Acta*. **2006**, *359*, 4019–4026. (Impact Factor = 1.687)

Conferences

(7) "Water Splitting Reactions Catalyzed by Transition Metal Complexes" **Sukanta Mandal** and Antoni Llobet in symposium on *Modern Trends in Inorganic Chemistry (MTIC XVI)*, Jadavpur University (December 3-5, 2015) (Poster Presentation).

(6) "Catalytic Four-Electron Reduction of O_2 via Rate-Determining Proton-Coupled Electron Transfer to a Dinuclear Cobalt-μ-1,2-peroxo Complex" **Sukanta Mandal**, Kentaro Mase, Kei Ohkubo, Hyejin Park, Jordi Benet-Buchholz, Wonwoo Nam, Antoni Llobet, and Shunichi Fukuzumi in *6th Asian Biological Inorganic Chemistry Conference (AsBIC VI),* Hong Kong, China (November 5-8, 2012) (Poster Presentation).

(5) "Mono/Di/Tri-, Homo/Hetero Nuclear Ru/Mn/Fe/Co Complexes as Water Oxidation Catalyst" **Sukanta Mandal**, Hyejin Park, Shunichi Fukuzumi, Wonwoo Nam and Antoni Llobet in *7th International Conference on Porphyrins and Phthalocyanines (ICPP-7)*, Jeju, Korea (July 1-6, 2012) (Poster Presentation).

(4) "Complexes of Ru and Mn as Water Oxidation Catalyst" Isidoro Lopez, Somnath Maji, **Sukanta Mandal** and Antoni Llobet in *Workshop of the European Research Project SOLAR-H2.* Berlin, Germany, March 2010 (Poster Presentation).

(3) "Modeling of Tyrosinase and Catechol Oxidase Activity Using Designed Ligands: Some Recent Results" **Sukanta Mandal**, Jhumpa Mukherjee and Rabindranath Mukherjee in *13th International Conference on Biological Inorganic Chemistry (ICBIC 13)*, Vienna, Austria (July 15-20, 2007) (Poster Presentation).

(2) "Demonstration of Aromatic Ring Hydroxylation (Tyrosinase-like Activity) Using New *m*-Xylyl-Based Schiff Base Ligand: Copper-Oxygen Intermediate Due to Reaction between Bis(μ-hydroxo)dicopper(II) and Hydrogen Peroxide" **Sukanta Mandal** and Rabindranath Mukherjee in *Chemical Research Society of India*, *8th National Symposium in Chemistry (NSC-8),* Indian Institute of Technology Bombay, Mumbai, India (February 3-5, 2006) (Poster Presentation).

(1) "Modeling Tyrosinase Activity. Demonstration of Aromatic Ring Hydroxylation Using a New *m*-xylyl-Based Ligand System" **Sukanta Mandal**, Jhumpa Mukherjee and Rabindranath Mukherjee in *Third Symposium on Advances in Bioinorganic Chemistry (SABIC-2004) in conjunction with Second Asian Biological Inorganic Chemistry Conference (AsBIC-II)*, Goa; Organized by Tata Institute of Fundamental Research, Mumbai, India (December 5-10, 2004) (Poster Presentation).

Oral Presentation

(5) "Bioinorganic Model Study and Water Oxidation Chemistry" at Department of Chemistry, Hooghly Mohsin College, 11th February, 2016 **(Invited talk)**

(4) "Transition Metal Complexes Encompassing Synthetic Bioinorganic Model Study and Water Splitting Chemistry" IISER Bhopal, 22nd April, 2014.

(3) "Transition Metal Complexes Encompassing Synthetic Bioinorganic Model Study and Water Splitting Chemistry" Indian Institute of Technology Kharagpur (IIT Kharagpur), 30th October, 2013.

(2) "Transition Metal Complexes Encompassing Synthetic Bioinorganic Model Study, Water Oxidation and Dioxygen Reduction Reactions" Indian Association for the Cultivation of Science (IACS), Kolkata, 10th January, 2013.

(1) Short talk entitled "Bio-Inspired Coordination Chemistry of Nickel and Copper" at *Chem Fest 2008,* In house symposium of Department of Chemistry at IIT Kanpur.
