

Dr. Amit Rajput
Assistant Professor
(From 6th April, 2021 to continued)
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Previously Assistant Professor
(From 16th August, 2017 to 5th April, 2021)
Department of Chemistry
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Education

Texas Tech University Postdoc fellow from 1 st July 2015 to 30 th June 2017. Photoswitchable ligands for light harvesting by transition metal complexes Research Supervisor: Dr. Anthony F. Cozzolino	Lubbock, Texas
Indian Institute of Technology Doctor of Philosophy – Inorganic Chemistry Thesis: Metal Coordinated Ligand Radical Species Research Supervisor: Dr. R. N. Mukherjee/ Dr. M. K. Ghorai	Kanpur, India 2015

Awards and Affiliations

Senior Research Fellowship (SRF-chemical sciences) by UGC in July 2011.
Qualified National Eligibility Test in Chemical Sciences (CSIR-UGC-JRF) in December-2008 (Conducted by Council of Scientific & Industrial Research, Human Resource Development Group, New Delhi)
Qualified GATE 2009 in Chemistry.
Got 1st Prize for the Best Poster Award Presentation in ACCC-4 (Asian Coordination Chemistry Conference-4) held at Jeju, South Korea in November 2013.
Got Global Scholarship for 21st Century for Postdoc by Texas Tech University, Lubbock, Texas, USA-79409.

Research Experience

1. Designed and synthesized Innocent and Non-innocent ligands, Photoswitchable ligands.
2. Designed and synthesized of 3d block compounds having interesting bioinorganic properties.
3. Having experience in different crystallization methods
4. Handling of air and moisture sensitive compounds and reactions.
5. Postdoc fellow from Feb, 2015 to June 2015 in IISER Kolkata, India (Department of Chemistry)
6. Postdoc fellow from 1st July, 2015 to 30th June, 2017 in Department of Chemistry and Biochemistry, Texas Tech University, Lubbock, Texas, USA-79409.

Teaching Experience

1. Assisted UG and MSc (Master of Science) laboratory courses as tutor for one and half year at IIT Kanpur.
2. Teaching B. Sc. (Chemistry) and M. Sc. (Chemistry) from 16th August, 2017 to till now.

Experimental Technique

During my research, I have worked on...

1. Interpretation of NMR, Solution magnetic moment of ¹H NMR, ESI-MS and its simulation
2. Electrochemistry (Cyclic voltammetry and Coulometry)/Photo-electrochemistry
3. UV-Visible Spectroscopy
4. Spectro-electrochemistry
5. EPR
6. Crystal solving (WINGX, SHELXTL) and visualization (Diamond, Mercury) Software
7. Schlenk line Technique and Use of Glove box for Anaerobic Rxn.
8. Routine DFT calculations

Publications

1. Coordination chemistry with pyridine/pyrazine amide ligands. Some noteworthy results. **Amit Rajput**, R. Mukherjee. (Coordination Chemistry Review 2013, 257, 350-368, **IMPACT FACTOR = 15.367**)
2. Valence tautomerism and delocalization in transition metal complexes of *o*-aminophenolates and other redox-active ligands. Some recent results. **Amit Rajput**, Anuj K. Sharma, Suman K. Barman, Anannya Saha and R. Mukherjee (Coordination Chemistry Review 2020, 411, 213240, **IMPACT FACTOR = 15.367**).

3. Low-Spin Iron(III) Complexes in Neutral, Monocation, and Monoanion Forms Stabilized by Azo-Appended Tridentate *o*-Amidophenolate(2-) and *o*-Iminobenzosemiquinonate(1-) π Radical. Amit Rajput, Anuj K. Sharma, Suman K. Barman, Debasis Koley, Markus Steinert and Rabindranth Mukherjee. (Inorganic Chemistry, 2014, 53, 36-48, **IMPACT FACTOR = 4.85**).
4. Monocation of $[\text{Cu}^{\text{II}}\{(\text{L}^{\text{ISQ}})^-\}_2]$ (H_2L : thioether-appended *o*-aminophenol ligand) triggers change in donor site from N_2O_2 to $\text{N}_2\text{O}(2)\text{S}$ and valence-tautomerism. Amit Rajput, Anannya Saha, Suman K. Barman, Francesc Lloret and Rabindranath Mukherjee (Dalton Transaction, 2019, 48, 1795–1813, **IMPACT FACTOR = 4.174**).
5. Six-coordinate $[\text{Co}^{\text{III}}(\text{L})_2]_z$ ($z = 1-, 0, 1+$) complexes of an azo-appended *o*-aminophenolate in amidate(2-) and iminosemiquinonate π -radical (1-) redox-levels: the existence of valence-tautomerism Amit Rajput, Anuj K. Sharma, Suman K. Barman, Francesc Lloret and Rabindranth Mukherjee. (Dalton Transaction, 2018, 47, 17086–17101, **IMPACT FACTOR = 4.174**).
6. Azo-containing Pyridine/Pyrazine Carboxamide Ligands: Series of Six Coordinated $\text{Fe}^{\text{III/II}}$ and $\text{Co}^{\text{III/II}}$ Complexes: Structures, Properties and Trend of $E_{1/2}$ Values For $\text{M}^{\text{III}}/\text{M}^{\text{II}}$ Redox Process. Arunava Sengupta, Amit Rajput, Suman K. Barman, and R. N. Mukherjee (Dalton Transaction Journal, 2017, 46, 11291-11305, **IMPACT FACTOR = 4.174**).
7. Copper (II) dimers stabilized by bis(phenol) amine ligands: Theoretical and Experimental Insights. Amit Rajput, Akhilesh Yadav, Arunava Sengupta, Priyanka Tyagi, Himanshu Arora (New Journal of Chemistry, 2018, 42, 12621-12631, **IMPACT FACTOR = 3.288**).
8. Syntheses, Crystal Structures and Conducting Properties of New Homoleptic Copper (II) Dithiocarbamate Complexes. Ajit N. Gupta, Vikram Singh, Vinod Kumar, Amit Rajput, Michael G. B. Drew, and Nanhai Singh (Inorganica Chimica Acta, 2013, 408, 145–151, **IMPACT FACTOR = 2.433**).
9. Modulation of the carboxamidine redox potential through photoinduced spiropyran or fulgimide isomerisation. Miranda C. Andrews, Ping Peng, Amit Rajput, Anthony F. Cozzolino (Journal of Photochemical & Photobiological Sciences, 2018, 17, 432–441, **IMPACT FACTOR = 2.408**).
10. Synthesis, Characterization, Electrochemical Properties and Theoretical Calculations of (BIAN) Iron Complexes Francis S. Wekesa, Patrick J. Larson, Arpita Singh, Cecilia R. Smith, Amit Rajput, Gregory P. McGovern, Daniel K. Unruh, Anthony F. Cozzolino and Michael Findlater (Polyhedron, 2019, 159, 365-374, **IMPACT FACTOR = 2.831**).
11. Influence of Functionalities on the Structure and Luminescent Properties of Organotin(IV) Dithiocarbamate Complexes. Ajit N. Gupta, Vinod Kumar, Vikram Singh, Amit Rajput, Lal Bahadur Prasad, Michael. G. B. Drew and Nanhai Singh. (Journal of Organometallic Chemistry, 2015, 787, 65-72, **IMPACT FACTOR = 2.173**).
12. Probing the electronic structure of $[\text{Ru}(\text{L}^1)_2]_z^z$ ($z = 0, 1+$ and $2+$) (H_2L^1 : a tridentate 2-aminophenol derivative) complexes in three ligand redox levels. Anannya Saha, Amit Rajput,

Puneet Gupta and Rabindranath Mukherjee (Dalton Transaction Journal, 2020, 49, 15355-15375, **IMPACT FACTOR = 4.174**)

13. Reversible inter-conversion of copper (II) dimers bearing phenolate-based ligands into their monomers: Theoretical and Experimental Viewpoints. P. Agarwal, A. Kumar, Richa, I. Verma, R. Erande, Julia Klak, Antonio J. Mota, H. Arora* and **Amit Rajput*** (New Journal of Chemistry, 2021, 45, 1203-1215, **IMPACT FACTOR = 3.288**).

14. Richa, M. Rathnam, A. Kumar, I. Verma, J. Kłak, J. Cano, A. J. Mota, **Amit Rajput***, H. Arora*. Discrete unusual mixed-bridged trinuclear $\text{Co}^{\text{III}}_2\text{Co}^{\text{II}}$ and pentanuclear Ni^{II} coordination complexes supported by phenolate-based ligand: theoretical and experimental magneto-structural study (Accepted in New Journal of Chemistry **IMPACT FACTOR = 3.288**)

Conference Attended

1. Attended and presented the poster in 3rd Asian Conference on Coordination Chemistry, In New Delhi, India (October 17-20, 2011).
2. Attended and deliver an oral presentation in CHEMFEST 2011 in IIT Kanpur, India.
3. Attended and presented the poster in CHEMFEST 2012 in IIT Kanpur, India.
4. Attended and presented the poster in 4th Asian Conference on Coordination Chemistry, In Jeju, South Korea (November 4-7, 2013) and got 1st Prize for the Best Poster Award Presentation.
5. Attended and presented the poster in Modern Trends in Inorganic Chemistry-XV (MTIC) Conference held on IIT Roorkee, India (December 13-16, 2013).
6. Attended and deliver an oral presentation in 252nd ACS Conference held in Pennsylvania, Philadelphia, USA (August 21-25, 2016).
7. Attended and deliver an oral presentation in 253rd ACS Conference held in San Francisco, California, USA (April 2-6, 2017).
8. Attended and presented the poster in 21st CRSI National Symposium held at IICT Hyderabad, India (July 14-16, 2017).
9. Attended and deliver an oral presentation in 4th REDSET International Conference held at G. D. Goenka University, Gurugram, Haryana, India (October 13-14, 2017).
10. Attended and presented the poster in ETCS (Emerging Trends in Chemical Science) International Conference held at Dibrugarh University, Assam, India (February 26-28th, 2018)
11. Attended and presented the poster in 23rd CRSI National Symposium held at IISER Bhopal, India (July 13-15, 2018).
12. Attended and deliver an oral presentation in 25th ISCB International Conference held at Lucknow, India (January 12-14, 2019).
13. Attended and presented the poster in 24th CRSI National Symposium held at CLRI, Chennai, India (February 8-10, 2019).

14. Attended and presented the poster in 25th CRSI National Symposium held at IIT, Kanpur, India (July 19-21, 2019).

References

1. Dr. Anthony Cozzolino (Assistant Professor)
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2. Dr. R. N. Mukherjee (Professor)
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3. Dr. P. K. Bharadwaj (Professor)
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