

Dr. Anand Ratnam

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ACADEMIC PROFILE

- ❖ **Ph.D.** Department of Chemistry, Indian Institute of Technology Roorkee, Roorkee - 247 667, Uttaranchal, India
- ❖ **M.Sc.** Department of Chemistry, Faculty of Science, Banaras Hindu University, Varanasi- 221 005, Uttar Pradesh, India
- ❖ **B.Sc.** Department of Chemistry, Faculty of Science, Banaras Hindu University, Varanasi-221 005, Uttar Pradesh, India

RESEARCH PROJECTS

1. Research project entitled “*Synthesis and characterisation of novel gold (I) and gold (III) organometallic complexes: Applications as potential anticancer agents and efficient catalysts*” funded rupees **36 Lakh** for above mentioned project by Science and Engineering Research Board (SERB) under SERB's sanction order No. EEQ12021/001022 dated 0 March, 2022.
2. Research project entitled “*Synthesis and spectral studies of pyridine-2,6-dicarboxamide based ligand and their transition metal complexes (Mn, Fe, Co, Ni and Cu): Application as catalytic properties and chemo sensor*” Funded rupees 10.44 for above mentioned project by UP-CST for 03 years starting from 2022.

RESEARCH AREAS

- ❖ Organometallic Chemistry
- ❖ Coordination Chemistry
- ❖ Catalysis
- ❖ Anti- Cancerous Activity

LIST OF PUBLICATIONS

1. **Anand Ratnam**, Sheela Kumari, Sain Singh, Kiran Mawai, Rajan Kumar U. P. Singh and Kaushik Ghosh * “Unprecedented cleavage of -N-N- bond of ligand and phenyl ring nitration during nitric oxide (NO) reactivity studies: new ruthenium nitrosyl complex and photoinduced liberation of NO” *J. Coord. Chem.* 2022, 1-11.
2. Sheela Kumari, **Anand Ratnam**, Kiran Mawai, Virendra Kumar Chaudhary, Aurobinda Mohanty, Kaushik Ghosh* “Cu(I) based catalysts derived from bidentate ligands and studies on effect of substituents for N-arylation of benzimidazoles and indoles” *New J. Chem.* 2020, 1369-9261.
3. Sheela Kumari, Ashish Kumar Dharaa, **Anand Ratnam**, Kiran Mawai, Virendra kumar Chaudhary, Aurobinda Mohanty and Kaushik Ghosh* “Role of substituents present in bidentate ligand frame Cu(I) catalysts on Sonogashira cross coupling reactions” *J. Organomet. Chem.*, 2020, 928, 121367.

- derived from tridentate mer-ligands having phenolato donor” *J. Organomet. Chem.*, **2020**, 905, 120986.
- Manju Bala*, Anand Ratnam, Kaushik Ghosh* “Naphthyl C8-H hydrogen activation and synthesis of organometallic ruthenium complex: Crystal structure of hydride intermediates and catalytic transfer hydrogenation” *J. Organomet. Chem.*, **2019**, 880, 91–97.
 - Rajan Kumar, Sushil Kumar, Manju Bala, Anand Ratnam, U. P. Singh, Kaushik Ghosh*. "Unprecedented oxidation of aldimine to carboxamido function during reactivity studies on ruthenium complex with acidified nitrite solution: Synthesis of ruthenium nitrosyl complex having {RuNO}⁶ moiety and photorelease of coordinated NO" *J. Organomet. Chem.*, **2018**, 863, 77–83.
 - Anand Ratnam, Manju Bala, Rajan Kumar, U.P. Singh, Kaushik Ghosh*, "Design and syntheses of a new family of palladium complexes derived from tridentate ligands and their application as catalysts for Suzuki–Miyaura cross–coupling reactions" *J. Organomet. Chem.*, **2018**, 856, 41-49.
 - Rajan Kumar, Anjlika Yadav, Anand Ratnam, Sushil Kumar, Manju Bala, Debпали Sur, Shikha Narang, Udai P. Singh, Prabhat K. Mandal,* and Kaushik Ghosh*, “Organometallic ruthenium nitrosyl obtained by C-H bond Activation – Photoinduced Delivery of Nitric Oxide and NO Mediated anti-proliferation activity studies” *Eur. J. Inorg. Chem.*, **2017**, 5334–5343.
 - Rajan Kumar, Sushil Kumar, Manju Bala, Anand Ratnam, U. P. Singh and Kaushik Ghosh*, “Site-specific orthometallation via C–H bond activation and syntheses of ruthenium (III) organometallics: studies on nitric oxide (NO) reactivity and photorelease of coordinated NO” *RSC Adv.*, **2016**, 6, 72096.
 - Sushil Kumar, Rajan Kumar, Anand Ratnam, Narayan C. Mishra, Kaushik Ghosh* “Novel drug delivery system for photoinduced nitric oxide (NO) delivery” *Inorg. Chem. Commun.*, **2015**, 53, 23-25.
 - Kaushik Ghosh,* Rajan Kumar, Kapil Kumar, Anand Ratnam and U. P. Singh “Reactivity of nitric oxide with ruthenium complexes derived from bidentate ligands: structure of a ruthenium nitrosyl complex, photoinduced generation and estimation of nitric oxide” *RSC Adv.*, **2014**, 4, 43599.

LIST OF WORKSHOPS AND CONFERENCES

- Delivered a invited Talk in the National Conference on “Molecules to Materials for Sustainable Development” on March 25th and 26th , 2022 organized by Dept. of Chemistry, DDU Gorakhpur University, Gorakhpur India.
- Participated in seven days online workshop on “*Advance Research Methodology in chemical sciences*” organized by Department of Chemistry, Deen Dayal upadhyay Gorakhpur University, Gorakhpur during July 06-12, **2021**.
- Participated as Committee member in National Webinar on “*POORVANCHAL DEVELOPMENT: ISSUES, STRATEGIES AND WAY FORWARD*” organized by Planning Department, Uttar Pradesh, India and DDU Gorakhpur University, Gorakhpur during during November 27-29, **2020**.
- Participated as Organizing Team Member in the National Seminar -cum-webinar on “Women in Leadership: Science” organized by Department of Chemistry, Deen Dayal upadhyay Gorakhpur University, Gorakhpur held on March 8, **2020**.
- Participated in 118th UGC-sponsored Orientation Programme organized by HRDC, DDU Gorakhpur University, Gorakhpur held on 04-24 January **2020**.

6. Participated in workshop on Science academics Lecture workshop on Emerging trends in Bioinorganic Chemistry held at the Department of Chemistry, Indian Institute of Technology Roorkee during March 8-10, **2018**.
7. “ACS ON CAMPUS” certificate of completion verifying that Anand Ratnam attended the full agenda of IIT Roorkee on 07 Feb **2018**.
8. Design and Syntheses of a New Series of Ru^{III}-mer Schiff Base Complexes and their Application as a Catalyst for Selective Oxidation of Benzyl Alcohol, **Anand Ratnam**, U.P. Singh and Kaushik Ghosh* “*Modern Trends in Inorganic Chemistry-XVII*” held at CSIR-NCL, Pune and IISER, Pune, 11-14 Dec. **2017**.
9. Participated in GIAN programme on “*Crystal structure determination: principle and application*” organized by Department of Chemistry, IIT Kanpur during Nov.29-Dec.9 **2017**.
10. Syntheses and structure of palladium complexes derived from Schiff base ligands and studies on their catalytic activity for C-C bond formation, **Anand Ratnam**, Manju Bala, Rajan Kumar, U.P. Singh Kaushik Ghosh*, “*18th CRSI national symposium in chemistry*” Punjab University, Chandigarh, 5-7 Feb. **2016**.
11. Participated in workshop on “*Spectro-electrochemistry*” organized by Department of Chemistry, north campus, University of Delhi on 17th and 18th June, **2015**.
12. Participated in “*Modern Trends in Inorganic Chemistry-XV*” held at department of chemistry, IIT Roorkee during December 13-16, **2013**.