IRSHAD AHMAD BHAT

(Curriculum vitae)

Current address

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About me

My name is Irshad Ahmad Bhat and I am an Assistant Professor of Chemistry in the Higher Education Department of J&K, India. I teach the beautiful subject of chemistry to the UG and PG students enrolled in various government colleges in Jammu & Kashmir. I did my masters from the University of Kashmir. Afterwards I obtained my Ph.D. from the Department of Chemistry at Indian Institute of Technology, Kanpur. During my doctoral studies I worked on the Late 3d-metal complexes of N-heterocyclic carbenes and their catalytic applications.

Though my heart still lies in the synthetic inorganic chemistry, I am a full-time chemistry teacher now, and I am loving the job of passing on the knowledge of the wonderful world of atoms and molecules and their reactivity, to the young minds of the country. Being an assistant professor in the J&K Higher Education Department means I have to teach in many colleges, throughout my service.

Work Experience

2017 – Present	Assistant Professor (Chemistry) Higher Education Department Jammu and Kashmir,
Place/s of work:	**2024 – Present:** Department of Chemistry, Amar Singh College, Cluster University Srinagar, Jammu and Kashmir **2018 – 2024:** Department of Chemistry, Government Degree College, Budgam, Jammu and Kashmir **2017 – 2018:** Department of Chemistry, Government Degree College, Beerwah, Jammu and Kashmir

Education

2011 – 2017
(Awarded-2022)

Doctor of Philosophy (Ph.D) Chemistry
Thesis Title: *Late 3d - Transition Metal Complexes Featuring a Heterobidentate Multifunctional NHC Ligand. Synthesis, Structure and Catalytic Applications.*

Institution: Department of Chemistry,
Indian Institute of Technology, Kanpur
Supervisor: Dr. G. Anantharaman

2008-2010

Masters of Science (M.Sc.) in Chemistry
(Specialization in Inorganic Chemistry)
Department of Chemistry, University of Kashmir, J & K, India
First Division (Percentage: 70.71%)

2005-2007

Bachelors of Science (B.Sc.)
Amar Singh College,
University of Kashmir
First Division (Percentage: 61.44%)

Skills

Teaching Skills & Expertise

- **Curriculum Development:** As an invitee at the Board of Studies meetings at the Cluster University, Srinagar, I have designed courses for the B.Sc and B.Sc. (Hons.) programs.
- **Student Engagement:** Skilled in interactive teaching methods to enhance student understanding.
- **Assessment & Evaluation:** Proficient in developing course materials, exams, assignments and model questions.
- **Technology Integration:** Skilled at using software like ***Chem-Biodraw and other chemistry related software programmes (like Mercury, Diamond) to create all kinds of advanced graphics required for a chemistry course/ study material/ book.*** Experienced in using MS-office, portals like Google classroom, Zoom, Google sites etc. for online and hybrid modes of learning.

Courses Taught

- Advanced Inorganic Chemistry covering the Bonding (MOT treatment) in inorganic compounds.
- Coordination and Organometallic Chemistry.
- Stereochemistry of the Organic Compounds.
- Reaction Mechanism in Organic Chemistry.
- Heterocyclic Chemistry
- Introductory undergraduate level course on Quantum Mechanics**.**

- Spectroscopy (NMR, IR, Vibrational, Rotational).
- Chemical Thermodynamics (undergraduate level).
- General courses on Inorganic, Organic and Physical Chemistry.
- Instrumental methods of chemical analysis (Introductory).
- Green Chemistry.

Other work Experience and Expertise

- I have worked as a teaching assistant for the following courses at the Department of Chemistry, IIT Kanpur;
    1. CHM-343: Inorganic Chemistry Lab (2013-14 UG 2nd semester)
    2. CHM-102R: General Chemistry (2014-15 UG 1st semester)
    3. CHM-102A: General Chemistry (2014-15 UG 2nd semester)
- Assisted two undergraduate students Kedar Kholia and Abhishek Jana in their undergraduate research projects at IIT Kanpur.
- Skilled in setting up and using Schlenk **Line Technique and Glove Box** to handle moisture and oxygen sensitive compounds
- Expertise in setting up complex and sensitive organometallic reactions
- Skilled at using **SHELX and WinGX** for solving and analyzing single crystal structures of molecules

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Publications

1. *Backbone Thio-Functionalized Imidazol-2-ylidene−Metal complexes Synthesis, Structure, Electronic Properties, and Catalytic Activity*. Vedhagiri Karthik, **Irshad Ahmad Bhat** and Ganapathi Anantharaman.

    ***Organometallics**., 2013, 32, 7006*

2. *Nickel(II)- and Palladium(II)-NHC Complexes from Hydroxypyridine Functionalized C,O Chelate Type Ligands: Synthesis, Structure, and Catalytic Activity toward Kumada − Tamao − Corriu Reaction.* **Irshad Ahmad Bhat**, Iruthayaraj Avinash and Ganapathi Anantharaman,

    ***Organometallics**, 2019, 38, 1699-1708.*

3. *Efficient Synthesis of Cu(II)-N Heterocyclic Carbene Complexes in Water and Their Activity Towards Aerobic Alcohol Oxidation.* **Irshad Ahmad Bhat,** Avinash I, Sharad K. Sachan, Sadhana Singh and G. Anantharaman.

    ***European Journal Of Inorganic Chemistry,** 2021, 44, 4560-4565*

4. *Not so inert mer-tris-chelate cobalt(III) complex of a hydroxy-pyridine functionalized NHC ligand for cyclic carbonate synthesis.* Rhiwika Chowdhury, **Irshad Ahmad Bhat,** Sharad Kumar Sachan, G. Anantharaman.

    ***Dalton Transactions** 2024,**53**, 17157-17161*

Seminars and Symposia Attended

1. Presented a poster entitled *"Donor Functionalized NHC-Metal complexes of Nickel and Copper: Catalytic Applications Towards Kumada Coupling and Alcohol Oxidation"* at the ***Organic Chemistry Symposium*** at IIT Kanpur on 18th to 20th January 2018.

2. Presented a poster entitled *"A Series Of New Cu(II)-NHC Complexes Featuring Hydroxypyridine Functionalized C,O-Chelate Type NHC 176 Ligands: Synthesis, Structure and Catalytic Application"* at the 16th ***International Symposium on Modern Trends in Inorganic Chemistry (MTIC-XVI)*** held at Jadavpur University on 3rd to 5th December 2015.

3. Presented a paper entitled ***"Sulphanilamide Schiff Base Complexes: Green Synthesis, Coordination and Electrochemical Behaviour"*** in ***6th JK Science Congress*** held at University of Kashmir on 2nd to 4th December 2010

Awards and Fellowships

- **Senior research fellowship (SRF)** by University Grants Commission (UGC), India 2013-onwards
- **Junior research fellowship (JRF)** by University Grants Commission (UGC), India 2011-2013
- Qualified joint CSIR-UGC **National Eligibility Test (NET) for LS** June 2010
