

Dr. ANUJ K. SHARMA, CV

Associate Professor

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Professional Positions

- 22/10/2022-Till date **Associate Professor at Central University of Rajasthan**
- 10/12/2016-22/10/2022 Assistant Professor at Central University of Rajasthan
- 31/03/2014-09/12/2016 : DST-INSPIRE Faculty at Central University of Rajasthan
01/10/2009-22/03/2014 : Post-Doctoral Research Associate at Washington University in St. Louis, USA
Project: *Development of Novel Chemical Compounds for Prevention, Diagnosis, Imaging and Treatment of Alzheimer's Disease*
Advisor: Professor Liviu M. Mirica
- July 2004-December-2004 : Trainee Research Associate at Jubilant Organosys Ltd. Noida

Education

- 2005-2009 : **Ph. D.**, Chemistry, Indian Institute of Technology, Kanpur, India
Thesis Title: "*Phenoxo-Bridged Cu^{II} Dimers and Phenoxo-/Acetato-Bridged Homo-(Ni^{II}₃, Co^{II}₃, and Fe^{II}₃) and Hetero-nuclear (Ni^{II}₂Mn^{II}, Ni^{II}₂Co^{II}, and Co^{II}₂Mn^{II}) Trimers: Magneto-Structural Studies*"
Advisor: Professor R. N. Mukherjee
- 2002-2004 : **M. Sc.** Chemistry, Indian Institute of Technology Roorkee, India
Project : "Synthesis and Characterization of Novel Metal Chelating Resins"
- 1998-2001: **B.Sc.** J. V. College Baraut (C. C. S. University Meerut)

Major Research Interest

Inorganic Chemistry, Coordination Chemistry, Inorganic Medicine, Bio-Inorganic Chemistry, Magneto-Structural Correlations, Imaging Agents in Biology, Neurodegenerative Disease, Metals in Biology.

Sponsored Project

| S.No. | Funding Agency | Title | Duration |
|-------|----------------|--|----------|
| 1. | DST, India | "Smart metal Chelators for MRI Contrast Agents" [35Lakh] | 2014-19 |
| 2. | DST-SERB | "Multifunctional Small Molecule based on Azo-Stilbene Molecular Framework as Amyloid Imaging Agents and Metal Chelators for Controlling Metal Induced-Neurodegenerative Diseases" [54.3 lakhs] | 2016-19 |

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| 3. | UGC | <i>Design and Synthesis of Selected Transition Metal (Fe, Ru, Rh, Ir) complexes/Arene Complexes and Investigating their Anticancer Potential [10 lakhs]</i> | 2018-20 |
| 4. | DST-SERB | <i>International Travel Support [1.1 lakhs]</i> | 2018 |
| 5. | DST-SERB | <i>Crystal Engineering and Molecular Magnetism in some 3d bivalent metal organic framework (*Mentor of Dr. Kishalay Bhar, NPDF) [21 lakhs]</i> | 2017-19 |
| 6. | NPIU | <i>Small Molecule Fluorescent Probes for amyloid-beta for the detection of Alzheimer's Disease” Co-PI [18.3 lakhs]</i> | 2019 |
| 7. | CSIR, India | <i>Thermal and photo induced iron(II) spin crossover materials using smartly designed bi-, tri-, and tetradentate N-donor ligands [25.4 lakhs]</i> | 2021-2024 |
| 8. | DST-SERB | <i>Novel Smart Bio-conjugated Cu and Ru Metal Based Molecular Agents with Enhanced Anti-Cancer Potential and Reduced Side-Effects [38 lakhs]</i> | 2022-2025 |

List of Publications of Dr. Anuj K Sharma

| YEAR | S. No. | Details |
|------|--------|---|
| 2023 | 42 | Bhatt, S.; Rana, M.; Sharma, A. K.* Joshi, H.* “Ruthenium Complexes of Bidentate N,N-Ligand as Catalyst for Efficient and Selective N-alkylation of Amines with Alcohols” Asian Journal of Organic Chemistry, 2023, under review. |
| | 41 | Rana, M.; Raj M. V. N.; Sharma, A. K.* “Selected Examples of Iron and Cobalt Complexes Exhibiting Spin-Crossover Behavior” Book Chapter in “Advances in materials science: Fundamentals and applications” Editors: R. S. Ningthoujam and A. K. Tyagi, Book in Springer Nature. 2023. Accepted. |
| 2022 | 40 | Bhatt, S.; Meena, N.; Kumar, M.; Bhuvanesh, N.; Kumar, A.; Sharma, A. K.* Joshi, H.* “Design and Syntheses of Ruthenium ENE (E = S, Se) Pincer Complexes: A Versatile System for Catalytic and Biological Applications” Chemistry-An Asian Journal, 2022, 17(21). E202200736. [DOI: 10.1002/asia.202200736] Publication Date: September 2022. [Impact factor = 4.569] |
| | 39 | Rana, M.; Cho, H.J.; Arya, H.; Bhatt, T. K.; Bhar, K.; Mirica, L. M.; Sharma, A. K.* “Azo-Stilbene and Pyridine-Amine Hybrid Multifunctional Molecules to Target Metal Mediated Neurotoxicity and Amyloid- β Aggregation in Alzheimer’s disease” Inorg. Chem. 2022, 61, 10294-10309. [DOI: 10.1021/acs.inorgchem.2c00502] Publication Date: June 29, 2022. [Impact factor = 5.436] |
| | 38 | Bhar, K.; Guo, W.; Gonidec, M.; Raj M, V. N. R.; Bhatt, S.; Perdih, F.; Guionneau, P.;* Chastnet, G.;* Sharma, A. K.; * “High temperature spin crossover behaviour of mononuclear bis-(thiocyanato)iron(II) complexes with judiciously designed bidentate N-donor Schiff bases with varying substituent ” Dalton Trans. 2022, 51, 9302-9313. [DOI: 10.1039/D2DT00416J] [Impact factor = 4.569] |
| 2020 | 37 | Sun, L.; Sharma, A. K.; Han, B.-H.; Mirica, L. M.;* “Amentoflavone: A Bifunctional Metal Chelator that Controls the Formation of Neurotoxic Soluble A β 2 Oligomers” ACS Chemical Neurosciences, 2020, 11, 17, 2741-2752 [doi/10.1021/acscchemneuro.0c00376]. Publication Date: August 5, 2020. [Impact factor = 5.78] |
| | 36 | Rana, M.; Pareek, A.; Bhardwaj, S.; Arya, G.; Nimesh, S.; Arya, H.; Bhatt, T.; Yaragorala, S.;* Sharma, A. K.* “Aryldiazoquinoline based Multifunctional Small Molecules for Controlling AChE Activity and Modulation of A β Aggregation related to Alzheimer’s Disease” RSC Advances, 2020, 10, 28827-28837. Publication Date: 04 Aug 2020. [Impact factor = 4.036] |

- 35 Jain, S.; Bhar, K.; Bandyopadhyaya, S.; Singh, V. K.; Mandal, C. C.; Tapryal, S.; **Sharma, A. K.*** “Development, Evaluation and Effect of Anionic Co-ligand on the Biological Activity of Benzothiazole Derived Copper(II) Complexes” **Journal of Inorganic Biochemistry**, **2020**, **210**, 111174. [https://doi.org/10.1016/j.jinorgbio.2020.111174] Publication Date: 3 July 2020. [Impact factor = 4.155]
- 34 Cho, H.-J.; **Sharma, A. K.**; Zhang, Y.; Gross, M. L.; Mirica, L. M.* “A Multifunctional Chemical Agent as an Attenuator of Amyloid Burden and Neuroinflammation in Alzheimer’s Disease” **ACS Chemical Neurosciences**, **2020**, **11**, **10**, 1471-1481 [doi/10.1021/acscemneuro.0c00114]. Publication Date: April 20, 2020. [Impact factor = 5.78]
- 33 Jain, S.; Bhar, K.; Kumar, S.; Bandyopadhyaya, S.; Tapryal, S.; Mandal, C. C.; **Sharma, A. K.*** “Homo- and Heteroleptic trimethoxy terpyridine-Cu(II) complexes: Synthesis, Characterization, DNA/BSA Binding, DNA Cleavage and Cytotoxicity Studies” **Dalton Trans.** **2020**, **49**, 4100-4113. Publication Date: 27 Feb 2020. [Impact factor = 4.569]
- 32 Rajput, A.; **Sharma, A. K.**; Barman, S. K.; Saha, A.; Mukherjee, R.*, “Valence tautomerism and delocalization in transition metal complexes of o-aminophenolates and other redox-active ligands. Some recent results” **Coord. Chem. Rev.** **2020**, **414**, 213240 [doi.org/10.1016/j.ccr.2020.213240]. Publication Date: 16 March 2020. [Impact factor = 24.83]
- 31 Khan, T. A.; Bhar, K.; Thirumoorthi, R.; Roy, T. K.; **Sharma, A. K.*** “Design, Synthesis, Characterization and Evaluation of Anticancer Activity of Water-Soluble Half-sandwich Ruthenium (II) Arene Halido Complexes” **New Journal of Chemistry**, **2020**, **44**, 239-257. [doi.org/10.1039/C9NJ03663F] Publication Date: 18 Nov 2019. [Impact factor = 3.925]
- 2019 30 Raj M. V. N.; Bhar, K.; Khan, T. A.; Jain, S.; Perdih, F.; Mitra, P.; **Sharma, A. K.*** “Temperature induced spin crossover behaviour in mononuclear cobalt(II) bis terpyridine complexes” **MRS Advances**, **2019**, **4** (28-29), 1597-1610. Publication Date: 08 April 2019. [DOI: <https://doi.org/10.1557/adv.2019.166>] [Impact factor = NA]
- 29 Raj M. V. N.; Bhar, K.; Jain, S.; Rana, M.; Khan, T. A.; **Sharma, A. K.*** “Syntheses, X-ray structures, electrochemical properties and biological evaluation of mono- and di-nuclear N2O2-donor ligand-Fe systems” **Transition Metal Chemistry**, **2019**, **44**(7), 615-626. Publication Date: 15 April 2019. [Impact factor = 2.266]
- 28 Singh, A. K.; Gothwal, A.; Rani, S.; Rana, M.; **Sharma, A. K.** Yadav, A. K.; Gupta, U.* “Dendrimer Donepezil Conjugates for Improved Brain Delivery and Better in vivo Pharmacokinetics” **ACS Omega**, **2019**, **4**, 4519-4529. Publication Date: March 1, 2019. [Impact factor = 4.132]
- 27 Sheoran, M.; Bhar, K.; Jain, S.; Rana, M.; Khan, T. A.; **Sharma, A. K.*** “Phenoxo-bridged dicopper complexes: Syntheses, characterizations, crystal structures and catecholase activity” **Polyhedron**, **2019**, **161**, 169-178. Publication Date: January 14, 2019. [Impact factor = 3.052]
- 26 Rana, M.; **Sharma, A. K.*** “Cu and Zn Interactions with A β peptides: Consequence of Coordination on Aggregation and Formation of Neurotoxic Soluble A β Oligomers” **Metallomics**, **2019**, **11**, 64-84. [DOI: 10.1039/c8mt00203g] Publication Date: 14 September 2018. [Impact factor = 3.796]
- 2018 25 Rajput, A.; **Sharma, A. K.**; Barman, S. K.; Lloret, F.; Mukherjee, R.*, Six-coordinate [CoIII(L)2]z (z = 1-, 0, 1+) complexes of an azo-appended o-

- aminophenolate in amidate (2-) and iminosemiquinonate π -radical (1-) redoxlevels: the existence of valence-tautomerism”, *Dalton Trans.* **2018**, 47, 17086-17101. Publication Date: Nov. 2, 2018. [Impact factor = 4.569]
- 24 Sheoran, M.; Bhar, K.; Khan, T. A.; Naik, S. G.; **Sharma, A. K.***, “Synthesis and characterization of phenoxo-bridged dinuclear zinc(II) halide complexes: Role of electron withdrawing group on phosphatase activity” *Journal of Chemical Science*, **2018**, 130, 108. Publication Date: 27 July 2018. [Impact factor = 1.573]
- 23 Pandey, P.; Sharma, A.; Rani, S.; Mishra, G.; Gopal, K.; Patra, A.; Rana, M.; Sharma, A. K.; Yadav, A.; Gupta, U.* “MCM-41 Nanoparticles for Brain Delivery: Better Choline-Esterase and Amyloid Formation Inhibition with Improved Kinetics”, *ACS Biomaterials Science & Engineering*, **2018**, 4(8), 2860-2869. Publication Date: July 9, 2018. [Impact factor = 5.395]
- 22 Rana, M.; Cho, H.-J.; Roy, T. K.; Mirica, L. M.; **Sharma, A. K.*** “Azo-dyes based small bifunctional molecules for metal chelation and controlling amyloid formation”, *Inorg. Chim. Acta*, **2018**, 471, 419-429. Publication Date: 22 November 2017. [Impact factor = 2.545]
- 2017 21 **Sharma, A. K.; Schultz, J. W.;** Prior, J. T.; Rath, N. P.; Mirica, L. M.* “Coordination Chemistry of Bifunctional Chemical Agents Designed for Applications in ^{64}Cu PET Imaging for Alzheimer’s Disease”, *Inorg. Chem.* **2017**, 56, 13801-13814. Publication Date: Nov. 7, 2017. [Impact factor = 5.436]
- 20 Bandara, N.; **Sharma, A. K.;** Krieger, S.; Schultz, J. W.; Han, B.-H.; Rogers, B. E.; Mirica, L. M.* “Evaluation of ^{64}Cu -based Radiopharmaceuticals that Target $\text{A}\beta$ Peptide Aggregates as Diagnostic Tools for Alzheimer’s Disease” *J. Am. Chem. Soc.* **2017**, 139(36), 12550-12558. Publication Date: August 21, 2017. [Impact factor = 16.38]
- 19 Sheoran, M.; Bhar, K.; **Sharma, A. K.;** Naik, S. G.* “Phosphatase activity and DNA binding studies of dinuclearphenoxo-bridged zinc(II) complexes with N,N,O-donor ligand and halide ions of rare cis-configuration”, *Polyhedron*, **2017**, 129, 82-91. Publication Date: 30 March 2017. [Impact factor = 3.052]
- 18 **US Patent** “Metal-binding bifunctional compounds as diagnostic agents for alzheimer’s disease” Mirica, L. M.; **Sharma, A. K.;** Schultz, J.; Publication date: 2015-07-30, **US Patent.** Patent Publication Number: US20150209452 A1; Application No. US 14/606,714. Publication Date: Nov. 7, 2017. [Impact factor =]
- 2016 17 Yaragorla, S.* Dada, R.; Singh, G.; Pareek, A.; Rana M.; **Sharma, A. K.** “Ca(II)-Catalyzed regioselective cascade synthesis of Oxindolyl naphthofurans through Meyer-Schuster type Rearrangement” *Chemistry Select* **2016**, 1(21), 6902-6906. Publication Date: 27 December 2016. [Impact factor = 2.307]
- 16 Badgurjar, D.; Sudhakar, K.; Jain, K.; Kalantri, V.; Venkatesh, Y.; Duvva, N.; Prasanthkumar, S.; **Sharma, A. K.;*** Bangal, P. R.;;* Chitta, R.;;* Giribabu. L.* “Ultrafast Intramolecular Photo-induced Energy Transfer Events in Benzothiazole –Borondipyromethene Donor – Acceptor Dyads” *J. Phys. Chem. C.* **2016**, 120, 16305-16321. Publication Date: July 8, 2016. [Impact factor = 4.177]
- 15 Pareek, A.; Dada, R.; Rana M.; **Sharma, A. K.;** Yaragorla, S.* “ Bu_4NPF_6 promoted regioselective cascade synthesis of functionally embellished naphthofurans under acid, metal & solvent free conditions” *RSC Advances*, **2016**, 6, 89732-89743. Publication Date: 13 Sep 2016. [Impact factor = 4.036]
- 14 Bera, S.; Lamba, S.; Rashid, M.; **Sharma, A. K.;** Medvinsky, A. B.; Li, B.-L.; Chakraborty, A.* “Robust kinetic regulation of ammonium assimilation by glutamate dehydrogenase” *Integrative Biology*, **2016**, 8(11), 1126-1132.

- 2014 13 Sharma, A. K.; Kim, J.; Hawco, N. J.; Rath, N. P.; Kim, J.; Mirica, L. M.* “Small Bifunctional Chelators that Do Not Dissagregate Amyloid Fibrils Show Reduced Cellular Toxicity”, *Inorg. Chem.* **2014**, 53, 11367-11376. Publication Date: 21 October 2014.
- 12 Mishra, V.; Sharma, A. K.; Mukherjee, R.* “Formation of 1D-Chain via C–H...Cl Interaction Utilizing [(L³)Zn^{II}Cl₂] (L³ = 2-[3-(20-Pyridyl)pyrazol-1-ylmethyl]-(1-methylimidazole)) Tecton”, *Proc. Natl. Acad. Sci., India, Sect. A Phys. Sci.* **2014**, 84(2), 315-320. Publication Date: 22 March 2014.
- 11 Rajput, A.; Sharma, A. K.; Barman, S.; Koley, S.; Mukherjee, R.* “Neutral, Cationic, and Anionic Low-Spin Iron(III) Complexes Stabilized by Amidophenolate and Iminobenzosemiquinonate Radical in N,N,O Ligands”, *Inorg. Chem.* **2014**, 53, 36-48. Publication Date: 10 December 2013.
- 2013 10 Zhang, Y.; Rempel, D. L.; Zhang, J.; Sharma, A. K.; Gross, M. L.; Mirica, L. M.* “Pulsed Hydrogen/Deuterium Exchange Mass Spectrometry Probes Conformational Changes in Amyloid Beta (Aβ) Aggregation”, *Proc. Natl. Acad. Sci. U.S.A.*, **2013**, 110(26), 10604-10609. Publication Date: 23 July 2013.
- 9 Sharma, A. K.; Pavlova, S. T.; Kim, J.; Kim, J.; Mirica, L. M.* “The Effect of Cu²⁺ and Zn²⁺ on the Aβ₄₂ Peptide Aggregation and Cellular Toxicity”, *Metallomics* **2013**, 5, 1529-1536. Publication Date: 23 August 2013.
- 8 Sharma, A. K.; Lloret, F.; Mukherjee, R.* “Phenolate- and Acetate (Both μ₂-1,1 and μ₂-1,3 Mode)-Bridged Linear Co^{II}₃ and Co^{II}₂Mn^{II} Trimers: Magneto-structural Studies”, *Inorg. Chem.* **2013**, 52, 4825-4833. Publication Date: 11 April 2013.
- 2012 7 Sharma, A. K.; Pavlova, S. T.; Kim, J.; Finkelstein, D.; Hawco, N. J.; Rath, N. P.; Kim, J.; Mirica, L. M.* “Bifunctional Compounds for Controlling Metal-Mediated Aggregation of Aβ₄₂ Peptide”, *J. Am. Chem. Soc.* **2012**, 134, 6625-6636. Publication Date: 27 March 2012.
- 2011 6 Sharma, A. K.; De, A.; Balamurugan, V.; Mukherjee, R.* “Conformational Flexibility of 2,6-bis(pyrazol-1-ylmethyl)pyridine (L⁵) in Discrete Complexes [(L⁵)Co^{II}(H₂O)₃]Cl₂ and [(L⁵)Ni^{II}(H₂O)₂]Cl·H₂O and in a Coordination Polymer [(L⁵)Hg^{II}Cl₂]_n·HgCl₂: Notable Supramolecular Topologies”, *Inorg. Chim. Acta* **2011**, 372, 327-332. Publication Date: 17 February 2011.
- 5 Javed, S.; Balamurugan, V.; Jacob, W.; Sharma, A. K.; Mukherjee, R. N.* “Discrete Monomeric and Chloride-Bridged and 1D Coordination Polymeric Mercury(II) Complexes of a Class of Pyridyl-Pyrazole Ligand with Variable Denticity and Flexibility”, *Indian J. Chem. Sec. A*, **2011**, 1248-1256. Publication Date: 21 June 2011.
- 2010 4 Sharma, A. K.; Biswas, S.; Barman, S. K.; Mukherjee, R.* “Azo-containing Pyridine Amide Ligand. A Six-coordinate Nickel(II) Complex and its One-electron Oxidized Species: Structure and Properties”, *Inorg. Chim. Acta* **2010**, 363, 2720-2727. Publication Date: 27 March 2010.
- 2009 3 Sharma, A. K.; De, A.; Mukherjee, R.* “Design, Structure, and Properties of Functional Metal-Ligand Inorganic Modules”, *Current Opinion in Solid State and Material Science*, **2009**, 13, 54-67.
- 2008 2 Sharma, A. K.; Mukherjee, R.* “Synthesis and Properties of (2-pyridyl)alkylamine- and (2-pyridyl)alkylamine-amide-coordinated Copper(II) Complexes. Structures and Noncovalent Interactions”, *Inorg. Chim. Acta* **2008**,

361, 2768-2776.

- 2007 1 Sharma, A. K.; Lloret, F.; V.; Mukherjee, R.* “Phenolate- and Acetate (both μ_2 -1,1 and μ_2 -1,3 mode)- Bridged Face-Shared Trioctahedral Linear Ni^{II}_3 , $\text{Ni}^{\text{II}}_2\text{M}^{\text{II}}$ (M = Mn, Co) Complexes: Ferro- and Antiferromagnetic Coupling”, *Inorg. Chem.* 2007, 46, 5128-5130.

Courses Taught at Central University of Rajasthan

| S. No. | Title of the Course | Level/Class | No. of times |
|--------|--|-------------|--------------|
| 1. | Coordination Chemistry (CHM405) | M.Sc. | 2 |
| 2. | Bioinorganic Chemistry (CHM-504) | M.Sc. (2Y) | 4 |
| 3. | Inorganic Chemistry-I (CHM-101) | Int. M.Sc. | 3 |
| 4. | Inorganic Chemistry-II (CHM-301) | Int. M.Sc. | 3 |
| 5. | Basic Inorganic Chemistry Lab-I (CHM110) | Int. M.Sc. | 3 |
| 6. | Advanced Topics in Inorganic Chemistry (CHM-704) | Ph.D. | 4 |

Academic Achievements/Distinctions

- 2018-International Travel Support from Science & Engineering Research Board for attending International Conference of Coordination Chemistry held at Sendai Japan.
- 2018-Best Oral Presentation Award in Convention of Chemistry Teachers” conference at RIE Ajmer from 25-27th October 2018.
- 2014-DST-INSPIRE Faculty Award for a period of 5 year (2014-2019)
- 2009-Post-Doctoral Research Associate position at Washington University in St. Louis, USA
- 2007-Travel Support from IIT Kanpur for attending “First Asian Conference of Coordination Chemistry” in Okazaki Japan.
- 2007-Best Poster Award for presenting poster in First Asian Conference of Coordination Chemistry” in Okazaki Japan.
- 2004-Council of Scientific and Industrial Research (CSIR) National Eligibility Test, (JRF and SRF).
- 2004-Graduate Aptitude Test for Engineering (GATE).

Conference & other Academic Presentations

| S. No. | Type of presentation | Title of the presentation | Details of Conference & Organizers |
|--------|--------------------------------|---|---|
| 35 | Invited Talk | Multifunctional Inorganic Systems Designed for Theranostic Applications in Alzheimer’s Disease | XIX Modern Trends in Inorganic Chemistry conference organized at BHU Varanasi 15 th – 17 th , December, 2022 |
| 34 | Invited Talk (resource person) | Selected Topics from Traditional and Contemporary Bioinorganic Chemistry | Refresher Course in Chemistry from 31 st October – 15 th November 2022, for college and University teachers, organized by UGC Human Resource Development Centre, NEHU, Shillong (Online). |
| 33 | Invited Talk (resource person) | An Overview of Metals in Biology: Both Traditional and Contemporary Bioinorganic Chemistry Topics | Two-week online Faculty Development Programme (FDP) in Chemical Sciences from 1-15 February 2022 organized by Miranda House and Ramanujan College, Delhi |

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| 32 | Invited Talk (resource person) | ICT Integrated Pedagogy of Chemistry of Daily Life | University. Capacity building of State resource group (SRGs) of northern region on the use of Learning Outcomes through ICT integrated pedagogy in teaching of Chemistry, mathematics and Life Sciences organized by RIE Ajmer from 17-21 January 2022. |
| 31 | Invited Talk (resource person) | Bonding Theories in Transition Metal Chemistry | Capacity building of State resource group (SRGs) of northern region on the use of Learning Outcomes through ICT integrated pedagogy in teaching of Chemistry, mathematics and Life Sciences organized by RIE Ajmer from 17-21 January 2022. |
| 30 | Invited Talk | Elements of Medicinal Importance: Functions in the Human Body | A one day symposium on Ahmedabad University on 23 January 2022 |
| 29 | Invited Talk | Metal-Ligand coordination in some multifunctional inorganic systems designed for biomedical applications | International Seminar as "Young Scientist Conclave (YSC-2021)" from 7-8 th August 2021 by <i>Indian Chemical Society for 160th Birth Anniversary of Acharya P. C. Ray</i> |
| 28 | Invited Keynote Talk | Role of metal ions in neurodegenerative diseases and on-going research to develop multifunctional chelators as theranostic agents | "Recent Trends in Chemistry and Environment" (RTCE-2021) organized by the Department of Chemistry, M.S.J. Govt. P.G. College, Bharatpur Rajasthan, India, to be held during 5-6 March, 2021. |
| 27 | Invited Talk (resource person) | Traditional and Contemporary Bioinorganic Chemistry: An overview | Gyan Ganga Programme jointly organized by Commissionerate, College Education Rajasthan and Department of Chemistry, S.P.C. Government College Ajmer from 11-16 January 2021. |
| 26 | Invited Talk | Data Processing using SCAN & NOVA Software tools: UV-visible Spectroscopy & Cyclic voltammetry | A one-week National e-Workshop cum value added course entitled "HANDS-ON TRAINING & PRACTICES IN COMPUTATIONAL CHEMISTRY" from Nov. 23-27, 2020 by J. C. Bose University of Science and Technology YMCA Faridabad |
| 25 | Invited Talk | Role of metal ions in neurodegenerative diseases and on-going research to develop multifunctional chelators as theranostic agents | Amity Institute of Molecular Medicine & Stem Cell Research Amity University, NOIDA on 29.10.2020 as a part of "Metals in Biology course" |
| 24 | Invited Talk | Multifunctional Inorganic Systems for Biomedical Applications | "Meet IIT Roorkee Chemistry Alumni" organised by Department of Chemistry during 10-15 th August 2020. Online Webinar series. |
| 23 | Invited Talk | Novel Small Metal-based Molecular Agents Designed for Therapeutic Applications | Webinar on "Challenges in Vaccine Development and Therapeutic Applications of Chemistry" organised by Department of Chemistry, Manipal University, Jaipur, on 28 th July 2020. Online Webinar series. |

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| 22 | Short Invited Lecture | Multifunctional Inorganic Systems for Biomedical Applications | XVIII Modern Trends in Inorganic Chemistry conference organized at IIT Guwahati from 11 th – 14 th , December, 2019. |
| 21 | Plenary Lecture and Session Chair | Novel Multifunctional Inorganic Systems for Biomedical Applications | 32 nd Indo-Canadian Multidisciplinary Research: Trends and Prospects Organised by Institute of Infrastructure, Research and Management, Ahmedabad on 28 th – 29 th , December, 2018. |
| 20 | Invited Lecture and Session Chair | Judicious Design of Multifunctional Inorganic Systems for Biomedical Applications | International Conference on Advanced Materials, Energy, & Environmental Sustainability Organized by Department of Chemistry & Physics, UPES, Dehradun National Conference on 14 th – 15 th , December, 2018. |
| 19 | ORAL | Smart Multifunctional Systems for Metal-Amyloids Interaction and Imaging Applications | “National Conference on New Trends in Research and Education in Chemical Sciences” organized at Regional Institute of Education, Ajmer from 25-27, October 2018. |
| 18 | Session Chair | NA | Department of Chemistry, Sophia Girls’ College (Autonomous), Ajmer, Rajasthan organized National Conference on “Advances in Science & Technology – an Interdisciplinary Approach (ASTIA – 2018) on 15 th – 16 th , October, 2018. |
| 17 | ORAL | Smart Multifunctional Systems for Metal-Amyloids Interaction and Imaging Applications | 43 rd International Conference of Coordination Chemistry (ICCC-2018) held at Sendai, Japan during 30 July to 04 August 2018 |
| 16 | Invited Lecture | Multifunctional Molecular Frameworks Designed for Metal-Chelation Therapy in Alzheimer’s Disease | National Conference on Recent Frontiers in Chemistry” held at HNB Garhwal University, Srinagar Garhwal, Uttarakhand during 27-28 th April 2018 |
| 15 | ORAL | Congo-Red-inspired-azo-stilbene molecular frameworks designed for metal-chelation therapy in Alzheimer’s disease | 24 th ISCB International Conference on (ISCBC-2018) on Frontier Research in Chemistry & Biology Interface” held at Manipal University, Jaipur from 11-13 th January 2018 |
| 14 | Lecture | Magneto-structural properties of phenolate-acetate-bridged polynuclear metal complexes | National Symposium on Technologically Advanced Functional Materials (NSTAFM-2017) being organized by the Department of Physics, Central University of Rajasthan during 16-17 th , March 2017 |
| 13 | Poster | Congo-Red-inspired-azo-stilbene molecular frameworks designed for metal-chelation therapy in Alzheimer’s disease | International conference on Frontiers at Chemistry-Allied Sciences Interface” during July 22-23, 2017 at Rajasthan University, Jaipur |
| 12 | Poster | Smart Metal Chelating Agents for Neurodegenerative Disease | International conference on Frontiers at Chemistry-Allied Sciences Interface” during April 25-26, 2016 at Rajasthan University, Jaipur |

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| 11 | Poster | Metal and Amyloids: Interaction and Theranostic Agents | <i>International Conference on Metal in Genetics and Biology held at IISc Bangalore, India during 17th-20th February 2016.</i> |
| 10 | Poster | Smart Metal chelators for Metal-Amyloid Interaction and Amyloid Plaque Imaging | <i>National symposium on emerging trends in chemical sciences held at Central University of Rajasthan on 18th March 2016</i> |
| 9 | Poster | Multifunctional Systems for Metal-Amyloids Interaction and Imaging Applications | <i>XVI International Symposium of Modern Trends in Inorganic Chemistry, held during December 06-08, 2015 at Jadavpur University, Kolkata</i> |
| 8 | Poster | Multifunctional Compounds for Controlling Metal-Mediated Neurodegeneration | <i>17th CRSI National Symposium in Chemistry, held during February 06-08, 2015 at CSIR-NCL, Pune</i> |
| 7 | ORAL | The Effect of Cu ²⁺ and Zn ²⁺ on the Amyloid-b Peptide Aggregation and Cellular Toxicity | <i>Biochemistry & The Computational & Molecular Biophysics Retreat October 25th and 26th, 2013 held at Cedar Creek Conference Center, Missouri. USA</i> |
| 6 | ORAL | Bifunctional Compounds for Controlling Metal-Mediated Aggregation of A β 42 Peptide | <i>Missouri Inorganic Day at St. Louis University, St. Louis, USA, on 5th May 2012</i> |
| 5 | Poster | New Bifunctional Compounds for Fluorescence Imaging and Controlling Metal-Mediated Aggregation of A β 42 Peptide | <i>Biochemistry & The Computational & Molecular Biophysics Retreat October 25th and 26th, 2012 held at Cedar Creek Conference Center, Missouri. USA</i> |
| 4 | Poster | New chemical agents for controlling amyloid-b peptide oligomerization/aggregation in Alzheimer's disease" | <i>Biochemistry & The Computational & Molecular Biophysics Retreat October 8th & 9th, 2010 held at Cedar Creek Conference Center, Missouri. USA</i> |
| 3 | Poster | New Chemical Agents for Controlling Amyloid-b Peptide Oligomerization/Aggregation in Alzheimer's Disease | <i>St. Louis University in Missouri Inorganic Day on 8th May 2010.</i> |
| 2 | Poster | Homo and Hetero Face-Shared Trioctahedral Linear Complexes: Magneto-structural Trend | <i>First Asian Conference on coordination Chemistry (ACCC-1), Okazaki, Japan (July 29th to 2nd August, 2007).</i> |
| 1 | Poster | Molecular and Electronic Structure of Coordination Complexes with Non-Innocent Ligands | <i>A special symposium "Friends of Inorganic Chemistry" for the 70th birthday of Prof. Animesh Chakravorty held in December 2008 at IACS Kolkata, India</i> |

Other Academic Participation/Contribution

1. Coordinator, Four weeks induction training program (20 January 2020 to 16th February 2021) by Teaching Learning Center @ Central University of Rajasthan.

2. Coordinator, One week online One Week Online Faculty Development Program on Implementation of New Education Policy -2020: Vocational Education and Skill Development from 14th – 18th Dec, 2020 by Teaching Learning Center @ Central University of Rajasthan.

3. **Coordinator**, Four weeks induction training program (27th May to 22nd June 2019) by Teaching Learning Center @ Central University of Rajasthan.
4. Invited Lectures on “art of grant writing” in Four weeks induction training program (27th May to 22nd June 2019) by Teaching Learning Center @ Central University of Rajasthan.
5. Member, Organizing committee of 10 days’ workshop on Teaching-Learning & Evaluation for Faculty Members of HEIs (14th to 24th December 2018) by Teaching Learning Center @ Central University of Rajasthan.
6. Member, Board of Studies, Department of Chemistry, Central University of Rajasthan.
7. Member, Board of Studies, Sophia College, Ajmer.
8. Member, Board of Studies, Sage University Bhopal.
9. Editorial Board Member, *SAGE International Journal of Science and Engineering* (SIJSE) from SAGE University, Bhopal
10. Deputy Coordinator (Academic Year 2018-19, 2019-20, 2020-21, 2021-22) of Integrated M.Sc. (5Y) Program at Central University of Rajasthan
11. Member, Organizing committee of four weeks induction training program (1st to 26th May 2018) by Teaching Learning Center @ Central University of Rajasthan.
12. Attended “Science Academies lecture workshop on Chemistry at the Interface of Biology”, during March 02-04, 2016 at Central University of Rajasthan.
13. Participated in four weeks induction training program (1st to 26th May 2018) by Teaching Learning Center @ Central University of Rajasthan with “A” grade.
14. Attended a Refresher Course by Indian Academies of Sciences in *Advances in Chemical Sciences and Sustainable Development* for College/University teachers and research scholars organized at the Department of Chemistry, School of Chemical Sciences and Pharmacy, Central University of Rajasthan, Bandarsindri 305 817, Ajmer Dist., Rajasthan for two weeks from 12-25 January, 2015.
15. Participated and contributed as a **Resource Person** in the workshop on "*Development of lab manual on microscale chemistry experiments for under graduate level*" during March 23-27, 2015.
16. Participated and contributed as a **Resource Person** in the workshop on "*Development of multimedia package to improve learning outcomes of students at senior secondary level*" during December 07-11, 2015.
17. Participated and contributed as a Resource Person in the workshop on "Development of multimedia package in Hindi to improve learning outcomes of students at senior secondary level" during November 25-27, 2017.
18. Participated and contributed as a Resource Person in the workshop on "Development of multimedia package to improve learning outcomes of students at senior secondary level" during January 03-06, 2017.
19. Subject Expert in the workshop on "Development of multimedia package to improve learning outcomes of students at senior secondary level" on March 03, 2017 at RIE Ajmer.

Membership of Professional Societies

1. Life member of Chemical research society of India (Membership No. LM1772).
2. Life Member of Indian Society of Chemists & Biologist (Membership No. LF-877/18)

Research Mentorship

| S.No. | Name of the Student | Program | Year/Status | Title of thesis/project |
|-------|---------------------|----------|--------------|-----------------------------------|
| 1 | Dr. Kishalay | National | August 2017- | Engineering Fe(II) spin crossover |

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|---|-------------------------|----------------------|---|---|
| | Bhar | Post-Doctoral Fellow | December 2020 | switches: Potential candidates in molecular electronics |
| 1 | Dr. Monika Sheoran | PhD | 2013-2018 Submitted on 09/04/2018 Completed on 13/11/2018 | Design, Synthesis and Applications of Bio-Inspired Copper and Zinc Complexes |
| 2 | Dr. Venkat Nikhil Raj M | PhD | 2013-2019 Submitted on 27/12/2019 Completed on 30/07/2020 | Synthesis, Characterization, Magnetic and Biological Studies of Fe and Co complexes with N ₂ (bidentate), N ₃ (tridentate) and N ₂ O ₂ (Tetradentate) Ligands |
| 3 | Dr. Surbhi Jain | PhD | 2014-2020 Submitted on 26/05/2020 Completed on 02/11/2020 | Bio-Affinity and Molecular Interactions of Novel Engineered Copper Complexes |
| 4 | Dr. Tanveer Alam Khan | PhD | Submitted on 13/03/2021 Completed on 06/09/2021 | Design and Synthesis of Bio-Inspired Ruthenium Complexes |
| 5 | Dr. Monika Rana | PhD | Submitted on 25/03/2021 Completed on 13/08/2021 | Multifunctional Chelators for Metal-Induced Neurodegenerative Disorders: Coordination Chemistry and Biological Studies |
| 6 | Surabhi Bhatt | PhD | 2018-Ongoing | Transition metal complexes with innocent and non-innocent ligands: Synthesis, Characterization and evaluation of anti-cancer potential. |
| 7 | Priyal Malpani | PhD | 2022-Ongoing | TBD |
| 8 | Reena Yadav | PhD | 2023- | |

Project Staff

| | | | | |
|---|----------------|------------------------------------|-----------------------------|---|
| 1 | Vibha Kalantri | Project Assistant in IFA-13, CH-97 | 2014-2015 | Smart Metal Chelators for MRI Contrast Agents |
| 2 | Manivannan Raj | Project Assistant in IFA-13, CH-97 | January 2017- November 2018 | Smart Metal Chelators for MRI Contrast Agents |

Master's Students Research Projects

| Sl. No. | Name | Enrolment Number | Programme | Title of the Project | Month and Year of Submission |
|---------|-----------------|------------------|------------|---|------------------------------|
| 1. | Mahesh K. Yadav | 2013MSC010 | M.Sc. (2Y) | New Multifunctional Amyloid-Binding Agent for the potential Application in neurodegenerative diseases | May, 2015 |

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| 2. | Jyoti Bhakhar | 2013MSC009 | M.Sc. (2Y) | Synthesis and Characterization of Multi-dentate Ligands for Lanthanide and Transition Metal Ions | May, 2015 |
| 3. | Soochi Sandhya Kumari | 2014MSC023 | M.Sc. (2Y) | Synthesis and Characterization of New Tetradentate N ₂ O ₂ Ligands for Preparing Polynuclear Transition Metal Complexes | May, 2016 |
| 4. | Vinay Gaur | 2014MSC025 | M.Sc. (2Y) | Designing New Multifunctional Compounds For Neurodegenerative Diseases | May, 2016 |
| 5. | Poonam Verma | 2015MSCH017 | M.Sc. (2Y) | Synthesis and Characterization of 1,4,7-Triazacyclononane-pyridine-carboxylate based Multidentate Ligands | May, 2017 |
| 6. | Alka | 2015MSCH005 | M.Sc. (2Y) | Azo-benzothiazole adducts as amyloids detecting agents: Synthesis & Characterization | May, 2017 |
| 7 | Poonam Nehra | 2015MSCH018 | M.Sc. (2Y) | Synthesis and Characterization of New Multidentate Ligands for Polynuclear Transition Metal Complexes | May, 2017 |
| 8 | Divya Deepika | 2016MSCH002 | M.Sc. (2Y) | Design And Synthesis Of Ruthenium Based Complexes As Potential Anticancer Candidates | May, 2018 |
| 9 | Balkrishna Sharma | 2013IMSBCH004 | Int. M.Sc. (5Y) | Water soluble Azo-Benzothiazole based metal chelators Designed for Alzheimer's Disease | May, 2018 |
| 10 | Vinay Kumar | 2015IMSBCH025 | Int. M.Sc. B.Ed. (3Y) | Design and synthesis of iron(II) and cobalt(II) complexes containing some tailored N-donor heterocycles | May, 2018 |
| 11 | Hemant Malawat | 2015IMSBCH003 | Int. M.Sc. B.Ed. (3Y) | Synthesis and Characterization of benzothiazole based Cu(II) and Zn(II) complexes | May, 2018 |
| 12 | Shiwani Bhardwaj | 2014IMSCH020 | Int. M.Sc. (5Y) | Screening of Biological Activities of Designed Multifunctional Compounds (MFCs) For Amyloid Inhibition, AChE Activities and Antioxidant Properties | May, 2019 |
| 13 | Shweta Singhal | 2016IMSBCH022 | Int. M.Sc. B.Ed. (3Y) | Evaluation of quinoline based Ru complexes towards their BSA binding interactions | May, 2019 |
| 14 | Neeraj Khinchi | 2014IMSCH024 | Int. M.Sc. (5Y) | Synthesis and characterization of phenoxo-bridged dinuclear zinc(II) halide complexes containing N,N,O-donor ligand | May, 2019 |
| 15 | Sudipta Chakraborty | 2018MSCH006 | M.Sc. (2Y) | Synthesis, characterization and spectroscopic study of azo based ligands for the treatment of Alzheimer's disease | May, 2020 |
| 16 | Rohit Samanta | 2018MSCH024 | M.Sc. (2Y) | Design, synthesis and evaluation of BSA binding properties of ruthenium arene complexes | May, 2020 |
| 17 | Pragya Poonia | 2015IMSCH016 | Int. M.Sc. (5Y) | Half-sandwich Ruthenium complexes with Schiff base ligand: Synthesis, characterization and catalytic activity | May, 2020 |

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| 18 | Aditi Mishra | 2016imsch001 | Int. M.Sc. (5Y) | "Evaluation of selected flavanoids for anti-Alzheimer's potential" | May 2021 |
| 19 | Simran Verma | 2019msch021 | M.Sc. (2Y) | "Evaluation of carefully designed Copper complexes for their DNA and BSA binding behavior" | May 2021 |
| 20 | Richa Singh | 2019msch018 | M.Sc. (2Y) | "Ruthenium complexes having Benzothiazole moiety: Synthesis, Characterization and their DNA-BSA Interaction" | May 2021 |
| 21 | Anjali S | 2020MSCH003 | M.Sc. (2Y) | Some Recent Examples of Multifunctional Cholinesterase Enzymes | May 2022 |
| 22 | Nisha Kumari | 2020MSCH015 | M.Sc. (2Y) | Anticancer Potential Of Copper Complex | May 2022 |
| 23 | Shubhadip Sanyal | 2020MSCH022 | M.Sc. (2Y) | Spin Transition in Fe(II) & Fe(III) Complexes:- Some Recent Examples | May 2022 |
| 24 | Ashwini | 2019IMSBCH001 | Int. M.Sc. B.Ed. (3Y) | Spin crossover phenomenon in cobalt complexes | May 2022 |
| 25 | Sharma Rhutu Bhudev | 2019IMSBCH023 | Int. M.Sc. B.Ed. (3Y) | Design and Synthesis of half-sandwich arene Ru-complexes: An efficient catalyst for N-alkylation of Anilines | May 2022 |
| 26 | Monika Sihag | 2018IMSCH010 | Int. M.Sc. (5Y) | Exploring selected flavonoids for metal and amyloid binding properties | May 2023 |
| 27 | Nitish Kumar | 2020IMSBCH015 | Int. M.Sc. B.Ed. (3Y) | Ru-arene half sandwich complex-catalysed coupling of methyl N-heteroarenes with Primary alcohols: Direct access to functionalized N-heteroaromatics | May 2023 |
| 28 | Umesh Morda | 2020IMSBCH026 | Int. M.Sc. B.Ed. (3Y) | Design, Synthesis and Characterization of Ruthenium-(p-cymene) complex: Efficient catalyst for Methyl substituted N-heteroazaarenes with Alcohols | May 2023 |
| 29 | Swati Swornaprava Pati | 2020IMSBCH025 | Int. M.Sc. B.Ed. (3Y) | Design, Synthesis and Characterization of Ruthenium-(p-cymene) complex: Efficient catalyst for Methyl substituted N-heteroazaarenes with Alcohols | May 2023 |