



PROFILE

Motivated researcher and professional with proven research and teaching experience in organic synthesis and polymer chemistry

CONTACT



Department of Chemistry,
GC University, Lahore,
Pakistan

<https://gcu.edu.pk/chemistry.php?pg=faculty>



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MUHAMMAD ARSHAD RAZA

ASSISTANT PROFESSOR

EDUCATION

PhD (In-Organic Chemistry) (2018)
Government College University Lahore

MPhil (Chemistry) (2010)
Govt. College University, Lahore, Pakistan

MSc (In-Organic Chemistry) (2005)
Bahauddin Zakariya University, Multan, Pakistan

WORK EXPERIENCE

Assistant Professor **March 2018-To-Date**
Department of Chemistry, Govt. College University, Lahore, Pakistan

- Teaching Classes from Grades 11 & 12, BS, MS and PhD
- Conducting Practical classes for Grades 11 & 12, BS, MS and PhD
- Supervising BS, MS and PhD students
- Working as a Store & Lab In charge
- Worked (two years) as Assistant Coordinator PhD & Deputy director Intermediate
- Working as In charge for prospectus update (2019 to date)
- Working as Research Lab In charge (2016 to date)

Lecturer **May 2016–March 2018**
Department of Chemistry, Govt. College University, Lahore, Pakistan

- Taught Classes from Grades 11-12 and BS
- Conducted Practical classes for Grades 11-12 and BS
- Supervised BS students

Head **Jan 2017 to date**
Training, Development and Publication (Superior Group)

- Conducting Training sessions for Superior Group Faculty

- Developing books (40 books developed for Grades 11, 12)
- Developing Question papers (Grades 9-12)
- Developing Entry Test Books (12 books developed)
- Developing scheme of study (Syllabus break up) for Grades 9-12
- Developing Test sessions for Grades 9-12
- Entry Test and Grade 9-12 websites developed
- Recorded 350 plus lectures of chemistry for Grades 11 to PhD



https://scholar.google.com/citations?hl=en&user=5dJETN0A AAAJ&sortby=title&view_op=list_works&gmla=AELoL3lw77GDgZh7ITBMKau7POVEn49nfxp_z9dk35v1W49mZ3wW-0Cj2a85KfmaEHS0O8r1GfO239EjGLrfRyQ

RESEARCH EXPERTISE

- Organic synthesis
- Crosslinking of polymers
- Copolymerization of biomaterials
- Targeted Drug Delivery Systems
- Wound Healing Studies
- Stimuli-Responsive polymers
- Smart Natural Hydrogels
- Water purification
- Nanoparticles synthesis and Characterization
- Natural Hydrogel Based Silver and Gold Nanoparticles

HONORS AND AWARDS

- HEC Awarded PhD
- External examiner for MPhil Thesis
 - Bahauddin Zakariya University, Multan
 - University of Sargodha, Sargodha
 - University of Lahore, Lahore
 - Superior University, Lahore
 - University of Lahore, Sargodha campus
 - University of management and technology, Lahore
- Member of HEC Curriculum Development

TEACHING EXPERTISE

- **Spectroscopic techniques (MS and PhD)**
 - UV-Visible
 - IR
 - ^1H NMR
 - ^{13}C NMR
 - Mass spectrometry
- **Pericyclic reactions (BS)**
- **Biochemistry (BS)**
 - Carbohydrates
 - Lipids
 - Proteins
 - Nucleic acids
- **Types of organic reactions (BS)**
 - Substitution reactions
 - Elimination reactions
 - Addition reactions
 - Rearrangement reactions
- **Chromatographic techniques (MS and PhD)**
 - GC-MS
 - HPLC
 - Size exclusion chromatography
 - Gas-Liquid chromatography
 - TLC and column chromatography
 - Ion exchange chromatography
- **Stereochemistry (BS)**
- **Basic organic chemistry (BS)**
 - Resonance
 - Inductive effect
 - Aromaticity
 - Hyperconjugation
 - Preparation of different functional groups
 - Interconversions of different functional groups
- **Intermediate Chemistry (Grades 11 & 12)**
 - Part-I Chemistry
 - Part-II Chemistry

PUBLICATIONS

1. Saif T, Azam A, Tuba, Muhammad G, **Raza MR**, Majeed A, et al. Quince seed gel-mediated zinc oxide nanoparticles: Synthesis, characterization, drug loading, and antimicrobial evaluation. *Journal of Chemical Research.* **2025**;49(4):17475198251361571.
2. Saeed M, Sharif S, Razia ET, Shahzad A, **Raza MA**, Arshad B, et al. Synergistic interplay of 1D bimetal co-Ni-MOF@ rGO for hybrid energy storage device. *Diamond and Related Materials.* **2025**:112496.
3. Tuba, Hussain MA, Muhammad G, **Raza MA**, Ashraf A, Haseeb MT, et al. A comprehensive review on phytochemistry, pharmacology, preclinical, and clinical trials of *Cydonia oblonga*. *Phytochemistry Reviews.* **2025**;24(1):85-118.
4. Sajjad N, Sultan A, Muhammad G, Azam A, **Raza MA**, Hussain MA, et al. Application of Genetically Modified Microorganisms for Remediation of Petrol Discharges and Related Polluted Sites. *Genetically Engineered Organisms in Bioremediation*: CRC Press; **2024**. p. 86-105.
5. Fatima Z, Fatima S, Muhammad G, Hussain MA, **Raza MA**, Amin M, et al. Stimuli-responsive glucuronoxylan polysaccharide from quince seeds for biomedical, food packaging, and environmental applications. *International Journal of Biological Macromolecules.* **2024**;273:133016.

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6. Muhammad G, Iqbal MM, Shahid M, Ashraf RS, Altaf M, Hussain MA, et al. Purification of water by the use of hydrogels. *Green Sustainable Process for Chemical and Environmental Engineering and Science*. **2023**:69-112.
7. Muhammad G, Saleem S, Shahid M, Ashraf RS, Altaf M, **Raza MA**, et al. Synthesis and biological applications of heparin-based composites. *Green Sustainable Process for Chemical and Environmental Engineering and Science*: Elsevier; **2023**. p. 347-73.
8. Azam A, Muhammad G, Aslam MS, Iqbal MM, **Raza MA**, Akhtar N, et al. Enhanced bactericidal and in vivo wound healing potential of biosynthesized zinc oxide nanoparticles from psyllium mucilage. *Applied Organometallic Chemistry*. **2023**;37(1):e6923.
9. Hussain I, Bashir F, **Raza MA**, Mushtaq A, Bhelil F, Riaz M, et al. Role of Physiochemical Parameters on the Extent of Aflatoxins in Curry/Chili Powder. *Pak-Euro Journal of Medical and Life Sciences*. **2023**;6(4):453-66.
10. Iqbal MM, Muhammad G, Hussain MA, Hanif H, **Raza MA**, Shafiq Z. Correction: Recent trends in ozone sensing technology. *Analytical Methods*. **2023**;15(28):3490-.
11. Iqbal MM, Muhammad G, Hussain MA, Hanif H, **Raza MA**, Shafiq Z. Recent trends in ozone sensing technology. *Analytical Methods*. **2023**;15(23):2798-822.
12. Singh YR, Shah DB, Kulkarni M, Patel SR, Maheshwari DG, Shah JS, et al. *rsc. li/methods. Methods*. **2023**;15:2833.
13. Ali E, **Raza M**, Cai M, Hussain N, Shahzad A, Hussain M. Calmodulin-binding transcription activator (CAMTA) genes family: Genome-wide survey and phylogenetic analysis in flax (*Linum usitatissimum*)(Retraction of Vol 15, art no E0236454, 2020). *PUBLIC LIBRARY SCIENCE 1160 BATTERY STREET, STE 100, SAN FRANCISCO, CA 94111 USA*; **2022**.
14. Azam A, Muhammad G, **Raza MA**, Iqbal MM, Aslam MS, Ashraf A, et al. Aerobic Biological Units in Dye Removal. *Biological Approaches in Dye-Containing Wastewater: Volume 1*: Springer; **2022**. p. 57-94.
15. Batool Z, Muhammad G, Iqbal MM, Aslam MS, **Raza MA**, Sajjad N, et al. Hydrogel assisted synthesis of gold nanoparticles with enhanced microbicidal and in vivo wound healing potential. *Scientific Reports*. **2022**;12(1):6575.
16. Iqbal MM, Muhammad G, Saif T, Aslam MS, **Raza MA**, Hussain MA, et al. Nanogenerators as a Sustainable Power Source. *Nanogenerators*: CRC Press; **2022**. p. 301-22.
17. Iqbal MM, Muhammad G, **Raza MA**, Aslam MS, Hussain MA, Shafiq Z. Fibrous membranes for water purification: Focusing on dye removal. *Membrane Based Methods for Dye Containing Wastewater: Recent Advances*: Springer; **2021**. p. 79-120.
18. Saif S, Saif T, **Raza MA**, Muhammad G, Iqbal MM, Rehman NU, et al. Systems for Dye Removal. *Membrane Based Methods for Dye Containing Wastewater: Recent Advances*. **2021**:1.
19. Saif S, Saif T, **Raza MA**, Muhammad G, Iqbal MM, Ur Rehman N, et al. An introduction to membrane-based systems for dye removal. *Membrane Based Methods for Dye Containing Wastewater: Recent Advances*: Springer; **2021**. p. 1-22.
20. Saleem S, Muhammad G, Iqbal MM, Hussain MA, **Raza MA**, Shafiq Z, et al. Polysaccharide-Based Liquid Crystals. *Polysaccharides: Properties and Applications*. **2021**:573-90.
21. Ashraf RS, Abid Z, Shahid M, Rehman ZU, Muhammad G, Altaf M, et al. Methods for the treatment of wastewaters containing dyes and pigments. *Water pollution and remediation: Organic pollutants*: Springer; **2021**. p. 597-661.

22.Raza M, Amin M, Muhammad G, Rashid A, Adnan A. Retraction Note to: Synthesis of Biologically Active Nickelocenyl–Amino Acid Conjugates Using 1, 3-Dipolar Cycloaddition Click Reactions. Springer; **2021**.

23.Raza M, Hussain M, Mazhar F, editors. Comparative Study of Different Techniques for Development of Optimal Load Spectrum. **2021** International Bhurban Conference on Applied Sciences and Technologies (IBCAST); 2021: IEEE.

24.Altaf M, Yamin N, Muhammad G, **Raza MA**, Shahid M, Ashraf RS. Electroanalytical techniques for the remediation of heavy metals from wastewater. Water Pollution and Remediation: Heavy Metals: Springer; **2020**. p. 471-511.

25.Muhammad G, **Mehmood A**, Shahid M, Ashraf RS, Altaf M, Hussain MA, et al. Biochemical methods for water purification. Methods for Bioremediation of Water and Wastewater Pollution: Springer; **2020**. p. 181-212.

26.Memon SA, Laghari NA, Mangi FH, Jafri MA, **Raza M**, Abbasi MA. Dosimetric Conformity of Cobalt-60 (Co 60) Beams. International Journal of Science and Engineering Investigations. **2017**;6(65):903.

27.Raza M, Amin M, Muhammad G, Rashid A, Adnan A. Synthesis of biologically active nickelocenyl–amino acid conjugates using 1, 3-dipolar cycloaddition click reactions. Russian Journal of General Chemistry. **2017**;87(11):2678-83.

28.Raza M, Jafri SMA, Uddin Z, Memon S, Ali S. A multi-center shielding verification study for radiotherapy linac bunkers in Karachi, Pakistan. Radiation protection dosimetry. **2017**;176(4):456-61.

29.Rashid A, Virk NA, Butt ARS, Adnan A, Pervaiz M, **Raza MA**, et al. Enzymatic synthesis of citronellyl palmitate in organic media: Process optimization and kinetic evaluation. Asian Journal of Chemistry. **2016**;28(2):298.

30.Raza MA, Pervaiz M, Rasheed A, Mustafa H, Adnan A. Synthesis, Characterization and Biological Studies of Ethynyl Nickelocene. Asian Journal of Chemistry. **2016**;28(5).

31.Arshad S, Naseer M, Arif N, Majeed A, **Raza M**, Muhammad G. Biogenic Synthesis of Silver Nanoparticles from Piper cubeb Corns with Potent Antioxidant and Antimicrobial Efficacy.

32.KULKARNI M, DASARATHI M, AGBEKO R, FLOOD T, MITRA D, RAZA M, et al. Was that diagnostic lumbar puncture necessary?: Poster 057. Developmental Medicine & Child Neurology. **2014**;56:34.

33.Raza M, Rehman Z-U, Chaudhry A, Gilani A, Nawaz M. Serum protein changes in horses infected with surra. **1982**.

34.Raza M, Rehman ZU, Chaudhry A, Gilani A, Nawaz M. Modifications des protéines sériques chez des chevaux atteints de surra. Revue d'élevage et de médecine vétérinaire des pays tropicaux. **1982**;35(2):147-51.

CONFERENCES

1. Attended and presented talks in four weeks of training on “Training of Teachers in Special Education Learning Differences and Learning Disabilities” hosted by Oakland University, Rochester, USA (May 5, **2023**, to June 02, 2023).

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2. Attended a virtual session on "Automating the Laboratory: Maximizing Efficiency Through Smart Solutions" by Wiley Analytical Science Spring Conference on April 27, **2023**.
3. Attended a virtual session on "Advancing Characterization of Materials by Multimodal 4DSTEM Analytical Methods" by Wiley Analytical Science Spring Conference on April 26, **2023**.
4. Participated in training on "Benchtop NMR: enhancing pharmaceutical development, scale-up and manufacturing" by European Pharmaceutical Review on April 26, **2023**.
5. Attended webinar on "Characterizing Advanced Battery Anodes with Gas Adsorption BET Surface Area and DFT Surface Energy" by Micromeritics on April 25, **2023**.
6. Took part in webinar on "Specific Heat Capacity Determination by DSC" by Wiley Analytical Science Spring Conference on April 19, **2023**.
7. Attended a webinar on "Powder Flow Characterization for Optimizing Processes in Industry and Research" by Micromeritics on April 11, **2023**.
8. Attended webinar on "Uranus: exploring the ice-cold chemistry of the 'frozen frontier" by Chemistry World Webinars on April 4, **2023**.
9. Participated in training webinar on "Optimizing Yield for Li-Ion Battery Electrode Manufacturing for Both Wet and Dry Processes" on March 29, **2023**, by Micromeritics.
10. Attended a webinar on "Introduction to energy dispersive spectrometry (EDS)" on March 23, **2023**, by Oxford instruments.
11. Acquired Advanced training on "Lithium-ion Battery Separator: Pore Structure Determination Using Mercury Intrusion Porosimetry" on March 23, **2023**, by Micromeritics Instrument Corporation.
12. Attended a lecture on "Studying protein polymerization with mass photometry" by Labroots on March 16, **2023**.
13. Attended a lecture on "Introduction to sample identification in the SEM with AZtecMatch" by Oxford instruments on March 9, **2023**.
14. Attended a webinar on "Physical Characterization Methods for Cathode Powders" by micromeritics on March 8, **2023**.
15. Attended a webinar "Introduction to Using Precision Tree: Measuring the Value of Information" by Rafael Hartke on March 5, **2023**.

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16. Attended a webinar on "Robots in the lab–learn how automation can streamline your workflow" by Chemistry world webinar on Feb 27, **2023**.
17. Attended Oil and gas webinar series 5: Project portfolio analysis and optimization on February 27, **2023**.
18. Attended webinar on "Imaging deeper, Faster and with super-resolution Dragonfly 600" by Ander Technology (Oxford instruments) on Feb 23, **2023**.
19. Participated in a one-day symposium "International Symposium on Hybrid Materials for Energy Conversion and Storage" by the Functional Materials Research Group, Department of Chemistry, Government College University, Lahore on Feb 16, **2023**.
20. Participated in a webinar on "Analytical Methods to Ensure Battery Raw Material and Electrode Performance" by Micromeritice on Feb 2, **2023**.
21. Attended webinar on "Enhancing your imaging workflows and ultrastructural data using Biological EDS" by Wiley Analytical Science on Feb 2, **2023**.
22. Attended "Virtual Organic & Medicinal Chemistry Symposium 2022" by LUMS on Dec 9, 2022.
23. Attended webinar on "nanoGPS: Correlative Microscopy Solution" by Wiley Analytical Science on Dec 8, 2022.
24. Attended webinar on "Is this the future of bioplastics upcycling?" by Chemistry World Waters on Dec 1, 2022.
25. Attended webinar on "Enabling a perfect research ecosystem with Science Direct at Higher Education Commission Pakistan" by Elsevier on Nov 28, 2022.
26. Attended webinar on "Multiresonant Plasmonic Meshes for Bio-interfaced Surface-enhanced Raman spectroscopy Imaging and Nonlinear Nano-optics" by ANDOR Technology (Oxford instruments) on Nov 25, 2022.
27. Attended webinar on "Interface of Chemistry & Biology - RSC Desktop Seminar series with Chemical Science" by RSC on Nov 25, 2022.
28. Attended Wiley Analytical Science Virtual Conference on "How to Achieve Oil-Free Conditions in the Laboratory" sponsored by Pfeiffer Vacuum on Nov 17, 2022.
29. Attended webinar on "Interface of Chemistry & Biology - RSC Desktop Seminar series with Chemical Science" by RSC on Nov 17, 2022.
30. Attended webinar on "Multiresonant Plasmonic Meshes for Bio-interfaced SERS Imaging and Nonlinear Nano-optics" by ANDOR Technology (Oxford instruments) on Nov 17, 2022.

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- 31.** Attended webinar on "Navigating the pathways of publishing in High-quality journals by using Scopus at Higher Education Commission Pakistan" by Elsevier on Nov 15, 2022.
- 32.** Attended webinar on "Interface of Chemistry & Biology" by RSC on Oct 26, 2022, 8:00 PM PKT.
- 33.** Attended one-day virtual conference on Metal Complexes for Biomedical Applications symposium (MCBA2022) by Chemistry Europe, Wiley on Mon, Oct 24, 2022, 2:50 PM - 7:10 PM PKT.
- 34.** Attended three days online workshop on "Make better data-based decisions with statistical modelling techniques" by Royal Society of Chemistry on Oct 11-13, 2022.
- 35.** Attended two days virtual conference on RSC-IITM Desktop Seminar on Environmental Sciences by Royal Society of Chemistry on Tue-Wed, Oct 11-12, 2022 2:15 PM - 5:30 PM PKT.
- 36.** Presented talks on "Academic excellence and analogy-based learning" in 11 different cities from June 21, 2022, to July 4, 2022.
- 37.** Attended and presented talks in six weeks of training on "Training of Teachers in Special Education Learning Differences and Learning Disabilities" hosted by Oakland University, Rochester, USA (May 7, 2022, to June 18, 2022).
- 38.** Attended a Two-day workshop on "Promoting Research Excellence in Academics across Pakistan" organized by HEC and Elsevier on 1st and 2nd February 2022.
- 39.** Attended an "International Symposium on Green Chemistry and Sustainable Developments" organized by the Institute of Chemistry, University of Sargodha, Sargodha on April 01, 2022.
- 40.** Presented poster (won 2nd prize) in "International Symposium on Green Chemistry and Sustainable Developments" organized by Institute of Chemistry, University of Sargodha, Sargodha on April 01, 2022.
- 41.** Presented talk on "Role of Activity Based Learning in Teaching Chemistry" at Superior University organized by Superior Executive & Development Program 2020. (Feb 2020)
- 42.** Presented talks on "Mastering Your Superior Skills" in 11 different Universities of Punjab organized by Superior Executive & Development Program 2019. (May 2019)
- 43.** Attended an International Conference for the promotion of University-Industry Linkage, Organized by the Department of Chemistry, GC University, Lahore, 54000, Pakistan, Jan 2018.

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44. Presented poster on *Moringa oleifera* L.: A multipurpose plant of nutraceutical importance in National Symposium on *Moringa oleifera*: Recent Trends and Challenges in Processing and Product Developments organized by Jointly organized by University of Sargodha and Punjab Agricultural Research Board (PARB) (April 09, 2018).

45. Presented talk on Glucuronoxylan polysaccharide mediated green synthesis of silver nanoparticles for antimicrobial and wound healing applications in 1st GRIP's International Conference on Pharmaceutical and Biochemical Sciences organized by Pak Pharma & Healthcare Expo (Jan 24, 2018).

46. Presented poster on Glucuronoxylan polysaccharide mediated green synthesis of silver nanoparticles for antimicrobial and wound healing applications in 1st GRIP's International Conference on Pharmaceutical and Biochemical Sciences organized by Pak Pharma & Healthcare Expo (Jan 24, 2018).

47. Presented talks on "Master Your Superior Profession" in 10 different Universities of Punjab organized by Superior Executive & Development Program 2018. (May 2018)

48. Presented talks on "Master Your Superior Profession" in 7 different Universities of Punjab organized by Superior Executive & Development Program 2017. (May 2017)

49. Attended a One-day symposium on "Green Chemistry: An Innovative Route to Sustainable Scientific Development". Organized by the Department of Chemistry, University of Sargodha, Sargodha 40100, Pakistan, on April 30, 2014.

50. Attended "One-day seminar on Functional Food and Nutraceuticals: Chemistry, Recent, Development and Future Prospects." Organized by Department of Chemistry, University of Sargodha, Sargodha 40100, Pakistan on March 20, 2013.

51. Attended a "Workshop on Biodiesel Technology: Processing, Potential Feedstock, Future Prospects and Challenges." Organized by Department of Chemistry, University of Sargodha, Sargodha 40100, Pakistan on Nov 5-6, 2012.

REFERENCES

1. **Prof. Dr. Ahmad Adnan**, Chairperson and Dean Department of Chemistry, GC University, Lahore. E-mail: ahmadadnan@gcu.edu.pk, Contact # 0323-4829242.
2. **Ayoub Rashid Ch.** Associate Professor, Department of Chemistry, GC University, Lahore. Contact # 0300-4249496
3. **Dr. Raja Shahid Ashraf**, Professor, Department of Chemistry, GC University