

Dr. MADEEHA BATOOL

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Area of Research

Analytical Chemistry, Advance Spectroscopic Studies, Catalysis, Computational Chemistry

Academic Record

PhD Chemistry	University of Nottingham, UK	2007-2011
PhD Thesis: Investigating the reaction mechanism by IR Spectroscopy		
PhD Supervisor: Prof. Dr. Mike. George, University of Nottingham, UK		
MPhil Chemistry	University of Engineering & Technology, Pakistan	2004-2006
1 st Division	MPhil Thesis: Neurotoxicity caused by heavy toxic metals	
MSc Chemistry	University of the Punjab, Pakistan	2001-2003
1 st Division	MSc Thesis: Determination of Lithium Contents in Infant Milk Formulas by Flame Photometry	
BSc (Chem, Bio)	Lahore College for Women, University, Pakistan	1999-2001
1 st Division		
FSc (Pre-medical)	Lahore College for Women, University, Pakistan	1997-1999
1 st Division		
Matric (Science)	Divisional Public School, Pakistan	1995-1997
1 st Division		

Professional Experience

- ❖ **Assistant Professor (Analytical Chemistry)** (Dec, 2011 till date)
Institute of Chemistry, University of the Punjab, Pakistan.
- ❖ **Lecturer (Chemistry)** (2006-2011)
Centre for Undergraduate Studies, University of the Punjab, Pakistan
- ❖ **Visiting Teacher (Advance Analytical Techniques, Research Methodology)** (Since Feb, 2018-till date)
Institute Coal Technology, University of the Punjab, Pakistan.

❖ **During PhD in the University of Nottingham**

- **Laboratory Practical's Demonstrator** (2008-2011) 1st year Undergraduate research lab, Inorganic Section, The University of Nottingham, UK.
- **Supervision of postgraduate research project students** at the University Of Nottingham, UK

Achievements:

1. HEC scholarship for PhD studies under faculty development program Phase 1, 2007.
2. HEC scholarship for PhD studies in Austria, 2006. (Not availed)
3. HEC Scholarship in M. Phil under the title 'support to scientific talent', 2004.
4. 1st prize for the best poster, 38th Inorganic reaction mechanisms Group Meeting (38th IRMG) at Oxford University on 4th -6th January, 2009.
5. Incentive Award for research Publications 2011, 2012, 2015, 2016 awarded by University of the Punjab
6. Awarded Performance Evaluation Award for the years 2012, 2013, 2015,2016 and 2017 by University of the Punjab
7. Judge in Science Model Competition, held at Govt, Post Graduate College for Women, Wahdat Colony, Lahore, 8-9 March, 2017
8. Judge in Invention to innovation summit, held at University of the Punjab 8-9 March, 2017
9. Best Poster award in Invention to innovation summit 2018, held at Punjab University on 7-8 March, 2018
10. Best technology award in Invention to innovation summit 2018, held at Punjab University on 7-8 March, 2018

Co-Curricular Activities

- ❖ 1st prize in debate competition held at Punjab University dated Feb, 2002.
- ❖ 1st prize on best performance in a play held at Punjab University, 2002.

Research Projects:

- ❖ **1.85 M (PKR)** Research Project Funded by **NRPU, HEC, Pak** as Principal Investigator
- ❖ Research Project Funded by University of the Punjab as Principal Investigator = **06 each of 0.15 M (PKR)**

Research Publications

1. J. Andreatta, G. Cieslinski, **M. Batool**, Xue-Zhong Sun, M. George, E. Brothers, D. Darensbourg, and A. Bengali, Displacement Kinetics of η^2 -Bound Furan and 2,3-Dihydrofuran from Mn and Cr Centers: Evidence for the Partial Dearomatization of the Furan Ligand. *Inorganic Chemistry* 2009, 48, 7787-7793. **Impact Factor: 4.857**
2. **M. Batool**, T. Martin, A. Naser, M. W. George, S. Macgregor, M. Mahon, M. Whittlesey, "Comparison of the Photochemistry of Organometallic N-Heterocyclic Carbene and Phosphine Complexes". *Chem. Commun.*, 2011, 11225-11227. **Impact Factor: 6.319**
3. **M. Batool**, T. Martin, A. Algarra, M. George, S. Macgregor, M. Mahon, M. Whittlesey, "Photochemistry of Cp'Mn(CO)₂(NHC) (Cp' = η^5 -C₅H₄Me) Species: Synthesis, Time-Resolved IR Spectroscopy, and DFT Calculations". *Organometallics* 2012, 31, 4971-4979. **Impact Factor: 3.862**
4. S. R. Gilani, **M. Batool**, S. R. A. Zaidi, Z. Mahmood, A. A. Bhatti and A. I. Durrani, "Central nervous system (CNS) toxicity caused by metal poisoning: Brain as a target organ" *Pak. J. Pharm. Sci.*, 2015, 28, 1417-1423. **Impact Factor: 0.649**
5. F. Farooq, U. Farooq, **M. Batool**, M. Athar, M. Salman, Q. Ahmed, A. Ashraf, "Use of wheat straw for effective binding of metal ions via a novel modification". *Korean Journal of Chemical Engineering*, 2015, 32(9) DOI: 10.1007/s11814-014-0382-y. 1818-1826, **Impact Factor: 2.007**
6. A. T. Shah, **M. Batool**, A. A. Chaudhry, F. Iqbal, A. Javaid, S. Zahid, K. Ilyas, S. B. Qasim, A. F. Khan, A. S. Khan, I. U. Rehman, "Effect of calcium hydroxide on mechanical strength and biological properties of bioactive glass". *Journal of the Mechanical Behavior of Biomedical Materials*, 2016, 61, 617-626. **Impact Factor: 3.110**
7. **M. Batool**, A.T. Shah, Muhammad Imran Din, Baoshan Li, "Catalytic Pyrolysis of Low Density Polyethylene Using Cetyltrimethyl Ammonium Encapsulated Monovacant Keggin Units (C₁₉H₄₂N)₄H₃(PW₁₁O₃₉) and ZSM-5" *Journal of Chemistry*, 2016, dx.doi.org/10.1155/2016/2857162. **Impact factor: 1.3**
8. Mirza Nadeem Ahmad, Fakher Rafiq, Faisal Nawaz, Tahir Farooq, Muhammad Naveed Anjum, Tajamal Hussain, Sajjad Hassan, **Madeeha Batool**, Hamad Khalid, Khurram Shehzad, "Synthesis of Antibacterial Poly(o-chloroaniline)/Chromium Hybrid Composites with enhanced Electrical Conductivity" *Chemistry Central Journal*, 2018, doi.org/10.1186/s13065-018-0416-3 **Impact Factor: 2.094**

9. Robina Begum, Zahoor H. Farooqi, Khalida Naseem, Faisal Ali, **Madeeha Batool**, Jianliang Xiao and Ahmad Irfan “Applications of UV/vis spectroscopy in characterization and catalytic activity of noble metal nanoparticles fabricated in responsive polymer microgels: A review” *Critical Reviews in Analytical Chemistry*, **2018**, DOI 10.1080/10408347.2018.1451299. **Impact Factor: 4.325**
10. Muhammad Waheed Mushtaq, Farah Kanwal, Muhammad Imran, Naila Ameen, **Madeeha Batool**, Aisha Batool, Shahid Bashir, Syed Mustansar Abbas, Ata urRehman, Saira Riaz, ShahzadNaseem, ZakaUllah, “Synthesis of Surfactant-Coated Cobalt Ferrite Nanoparticles for Adsorptive Removal of Acid Blue 45 Dye”*Materials Research Express*, 2018, 5, doi.org/10.1088/2053-1591/aab6a4 **Impact Factor: 1.449**
11. Saira Attique, **Madeeha Batool**, Muhammad Irfan Jalees, Khurram Shehzad, Umar Farooq, Zakir Khan, Fawad Ashraf, Asma Tufail Shah “Highly efficient catalytic degradation of low-density polyethylene using a novel tungstophosphoric acid/kaolin clay composite catalyst”, Turkish journal of chemistry. Doi:10.3906/kim-1612-21, 2019 Volume Pg 684-693 **Impact Factor: 1.00**
12. Sohail Chand, Sarah Ahmad, **Madeeha Batool**, “Solution Path Efficiency and Oracle Variable Selection by Lasso-type methods”, *Chemometrics and Intelligent Laboratory Systems*, 183 (2018) 140-146, 2018 **Impact Factor: 2.786**
13. Muhammad Imran Din, Khalida Naseem, **Madeeha Batool**, Muhammad Latif Mirza, “Evaluation of Saccharum bengalense as a non conventional biomaterial for biosorption of Mn (II) ions from aqueous solutions” *Iranian journal of Chemistry and chemical engineering*, 2018 vol 37 No 6 Pg 179-189 **Impact Factor: 0.461**
14. Kanwal Ilyas, Saba Zahid, **Madeeha Batool**, Aqif Anwar Chaudhry, Arshad Jamal, Farasat Iqbal, MianHasnain Nawaz, Oliver Goerke, Aleksander Gurlo, Asma Tufail Shah, Ihteshamur Rehman, “In-Vitro Investigation of Graphene Oxide Reinforced Bioactive Glass Ceramics Composites”, *Journal of Non-crystalline solids*, doi.org/10.1016/j.jnoncrysol.2018.10.047, 2018 **Impact Factor: 2.488**
15. Mehwish Sharif, **Madeeha Batool**, Sohail Chand, Zahoor Hussain Farooqi, Syed Azhar Ali Shah Tirmazi, Makshoof Athar, “Forensic Discrimination Potential of Blue, Black, Green, and Red Colored Fountain Pen Inks Commercially Used in Pakistan, by UV/Visible Spectroscopy, Thin Layer Chromatography, and Fourier Transform Infrared Spectroscopy”, *International Journal of Analytical Chemistry*, Volume 2019, doi.org/10.1155/2019/5980967, **Impact Factor: 1.479**

16. Farah Suhail, **Madeeha Batool**, Muhammad Imran Din, Misbahul Ain Khan, Khurshid Ayub, Sobia Tabassum, Asma Tufail Shah, "Synthesis and characterization of immobilized 1-(1,3-diphenyl-5-hydroxy-1H-pyrazol-4-yl)ethanone on silica gel and its use for aqueous heavy metal removal", *Desalination and Water Treatment*, doi: 10.5004/dwt.2019.23393, Volume 142, 213-224, 2019. **Impact Factor: 1.234**

17. Faiza Zarif; **Madeeha Batool**; Faiza Sharif; Urooj Gul; Mazhar A Gilani; Ammar Haider; Ayesha Idrees; Sobia Tabassum, "Enhanced Surface Properties of Hydroxyapatite by Grafting Tartaric Acid for Sustained Release of Moxifloxacin" *Chemistry Select*, Volume 4, 4105-4111, 2019 **Impact Factor: 1.716**

Conferences Proceedings:

1. Inorganic reactions at the molecular level 38th meeting of the RSC IRMG. "Investigating the Photochemistry of Organometallic N-Heterocyclic Carbene complexes." Inorganic Chemistry Laboratory, University of Oxford, 2009.
2. Inorganic reactions at the molecular level 38th meeting of the RSC IRMG. "Time resolved infrared (TRIR) studies of Cp'Mn(CO)₂L (Cp'=C₅H₄Me, L=NHC, PR₃): The photochemistry of N-Heterocyclic Carbenes (NHCs) vs. Phosphines". Inorganic Chemistry Laboratory, University of Oxford. 2009.
3. 10th International Symposium on Analytical and Environmental Chemistry "Effect of CdS and its synthesized nanoparticles on the photodegradation of Drimarene Blue K₂RL". University of Sindh, Jamshoro, December 02-04, 2013.
4. 25th National and 13th International Chemistry conference, "Selective adsorption of Heavy metals by Novel Silica Supported Pyrazole Compounds". Institute of Chemistry, University of the Punjab Oct 20-22, 2014.
5. Frontiers of Nanoscience and Nanotechnology "Analytical investigation of phosphotungstate nanoparticles synthesized by reverse micelle". PINSTECH, Islamabad on October 25-27, 2016.
6. 5th International symposium, "In-situ synthesis of bioactive glass nanoparticles on grapheme oxide by co-precipitation method" at IRCBM, COMSATS, Lahore on 14th-16th December, 2016
7. International Symposium on Green Chemistry, "From Low-Density Polyethylene Waste to liquid fuel using Tungstophosphoric Acid loaded Clay", La-Rochelle, France 16-19 May, 2017

Papers presented in National/International Conferences

1. Poster Presentation in Regional Dalton postgraduate meeting at University of Warwick on 27th March, 2008
2. Poster Presentation in 37th Inorganic reaction mechanisms Group Meeting (37IRMGM) at Barcelona on 9-12 Jan, 2008.
3. Poster Presentation, RSC meeting, University of Nottingham 2008.
4. Poster Presentation in Infrared and Raman Discussion Group Meeting (IRDG) at University College London on December, 2008.

5. Poster Presentation in 38th Inorganic reaction mechanisms Group Meeting (38th IRMGGM) at Oxford University on 4th -6th January, 2009.
6. Poster Presentation at the 'Postgraduate Research Symposium' The University of Nottingham, UK, June, 2009.
7. Poster Presentation in Infrared and Raman Discussion Group Meeting (IRDG) at University College London on 17th December, 2009.
8. Oral Presentation at the 'Postgraduate Research Symposium' The University of Nottingham, UK, 28th & 29th June, 2010.
9. Poster presentation in 10th International Symposium on Analytical and Environmental Chemistry at University of Sindh, Jamshoro, 02-04 Dec, 2013.
10. Poster Presentation 25th National and 13th International Chemistry conference at Institute of Chemistry, University of the Punjab Oct 20-22, 2014
11. Poster Presentation in a conference on Frontiers of Nanoscience and Nanotechnology at PINSTECH, Islamabad on October 25-27, 2016
12. Poster Presentation in 5th International symposium on Biomedical Materials at IRCBM, COMSATS, Lahore on 14th-16th December, 2016
13. Poster presentation in 6th Invention to Innovation Summit, University of the Punjab, 8th-9th March, 2017
14. Poster Presentation in International Symposium on Green Chemistry, La-Rochelle, France 16-19 May, 2017
15. Oral presentation in 7th Pak Pharma and Health Care expo and 1st GRIP International conference on 'Pharmaceutical and Biochemical sciences (CPBS)' at Expo Centre, Lahore on 23-24th Jan, 2018
16. Poster presentation in 7th Invention to Innovation Summit, University of the Punjab, 7th-8th March, 2018
17. Oral presentation in 4th International conference on "Recent Trends in Chemistry" at Allama Iqbal Open University on 7th -8th Nov, 2018

Conference Organized

- ❖ 25th National and 13th International Chemistry conference at Institute of Chemistry, University of the Punjab Oct 20-22, 2014
- ❖ Pak Pharma Health Care Expo and GRIP international Conference on pharmaceutical and Biochemical sciences at Expo Centre Lahore. from 15th to 17th Jan, 2019

Conferences Attended

1. RSC Photochemistry Group Young Researchers Meeting at Loughborough University on 6th Dec, 2007
2. RSC Dalton Division with Environment, Sustainability and Energy Forum at University of Nottingham on 12th March, 2008.

3. Infrared and Raman Discussion Group Meeting (IRDG) at University College London on 16th December, 2010.
4. International Conference on Engineering Sciences (ICES) at the Institute of Chemical Engineering and Technology, University of the Punjab, Lahore on February 28-29, 2012.
5. 3rd International Symposium on Biomedical Materials: Recent Advances and Challenges in IRCBM, COMSATS, Lahore on 18-20 Dec, 2012.
6. Seminar on Chromatographic techniques and Sample Preparation, Avari Lahore, 23rd Jan, 2014
7. Conference on Chemical Trends in Department of Chemistry, LUMS, Lahore on October 17, 2014
8. 4th International Symposium on Biomedical Materials Translational Research and Commercialization in IRCBM, COMSATS, Lahore on 15th-17th Dec, 2014
9. Functional Nanomaterials for Catalysis and Energy Conversion held at UET, Lahore on 16th May, 2016
10. International conference on Current Research in Chemical and pharmaceutical Sciences at Forman Christian College Lahore on 18th-20th Jan, 2017
11. Symposium on Drug development and radiolabeled compounds at GC, Faisalabad on 21st March, 2017.
12. 6th International Symposium on Biomedical materials, IRCBM, COMSATS, Lahore, 14-16 Dec, 2017
13. International Conference on “Chemical and Pharmaceutical approaches in Research and applications at Department of Chemistry FC University, Lahore on 17-19th January, 2018
14. International symposium on advanced energy materials; Production to storage at IRCBM, COMSATS, Lahore on 25th June, 2018
15. International Conference on “Modern Trends in Chemistry and Energy Technologies” at COMSATS University, Lahore campus, Lahore on 22-23th October, 2018
16. 3rd PAK WATER and Energy Expo Exhibition and Conference at Expo centre Lahore on 24-25th October, 2018
17. Pak Pharma Health Care Expo and GRIP international Conference on pharmaceutical and Biochemical sciences at Expo Centre Lahore from 15th to 17th Jan, 2019
18. International conference on Nanomaterials: new trends in development & applications at FC University Lahore from 29th to 31st Jan, 2019
19. International conference on Recent trends in Chemistry at University Lahore from 27th to 29th Nov, 2019

Workshops Attended

- ❖ International workshop on Recent Trends in Analytical Chemistry at COMSTECH, Islamabad on April 3-5, 2012.

- ❖ Workshop attended on Biodiesel Technology: Processing, Potential Feedstock, Future Prospects and challenges at Department of Chemistry, University of Sargodha on November 5-6, 2012.
- ❖ Workshop on Fourier Transform Infrared Spectroscopy in IRCBM, COMSATS, 1st July, 2013
- ❖ Workshop on Modeling and Simulation of Materials-Density Functional Theory at PINSTECH, Islamabad on 23-25 Sep, 2014
- ❖ Workshop on Density Functional Theory held in FC, Lahore on Jan, 2016
- ❖ Workshop on Dental and Biomaterials held at IRCBM, COMSATS on 15-19 August, 2016

Certifications and Professional Trainings

1. “Skills for demonstration in Chemical Labs”, University of Nottingham, UK, 3 days in each year from 2007-2010.
2. Safe use of Lasers, University of Nottingham, UK, 3 Months training, 2007
3. “High Pressure Safety Course”, University of Nottingham, UK, 5 days in each year from 2007-2010.
4. NMR training, University of Nottingham, UK, 2007
5. MS training, University of Nottingham, UK, 2007
6. X-Ray (crystallography) training, University of Nottingham, UK, 2007
7. Trained to use low temperature set up with FTIR spectrometer, Point by point Diode laser TRIR (Time resolved Infrared) spectrometer, Point by point QCL laser Spectrometer, Ultra fast TRIR spectrometer, Fluorimeter and UV-Vis Spectrophotometers.
8. “teaching for Post graduate research students and researchers”, University of Nottingham, UK, 2008
9. “Introduction to library skills”, University of Nottingham, UK, 2008
10. “Presentation skills-building confidence”, (Science and engineering)”, University of Nottingham, UK, 2009
11. “Continuing as an Academic researcher, University of Nottingham, UK, 2009
12. Becoming an Interdisciplinary researcher, University of Nottingham, UK, 2010
13. “Research Ethics, Endnote and Turnitin”, Department of Library and Information Sciences, University of the Punjab, 2-3 October, 2012
14. Dental and Biomaterial Summer Camp, IRCBM, COMSATS, Lahore on 17th-21st August, 2015
15. Pakistan Science Foundation Workshop “Fund Winning Opportunities” held at University of the Punjab, 2-3 March, 2016
16. Office of Research Innovation and Commercialization workshop on Entrepreneurship “Usage of Intelligence for Business Development” held at Institute of Chemistry, 20th December, 2016

Professional Skills

- ❖ Skills in the data collection and interpretation (UV/Vis absorption and Emission spectrum, Fluorimeter, Mass spectrum, Infrared spectrum including Ultrafast ps and ns TRIR spectrum, NMR spectrum, XRD spectrum, GC and HPLC chromatograms, CHN analysis, TGA, DSC etc.).
- ❖ Trained to use low temperature and high pressure set ups with FTIR spectrometer, Point by point Diode laser TRIR (Time resolved Infrared) spectrometer, Point by point QCL laser Spectrometer, Ultra fast TRIR spectrometer, Fluorimeter and UV-Vis Spectrophotometers.
- ❖ Experience in use of a wide range of software (MS-Office, ACD labs, ChemDraw Ultra, Omnic, Origin, Sci-finder Scholar, Labview, Gauss View, End note, turnitin etc.).

Administrative Responsibilities

- ❖ Focal Person for Career Counseling (Since 2014 till date), Institute of Chemistry, University of the Punjab, Lahore
- ❖ HEC approved Supervisor
- ❖ Elected Member of Senate, University of the Punjab, Lahore (2016-2019)
- ❖ Member Core Committee to develop/ strengthen the University-Industry Linkages, University of the Punjab (July, 2013 to date)
- ❖ Member Post-graduate Research Committee, Chemistry Department, University of Engineering and Technology, Lahore, for Evaluation of MPhil and PhD research Synopsis (March 2016 to date)
- ❖ Member Board of Studies, Chemistry department, University of Engineering and Technology, Lahore (March 2016 to date)
- ❖ Member of Committee to implement Admission Policy, University of the Punjab (2014-date)
- ❖ Member of Book fair Coordination Committee and Security Management Committee, University of the Punjab (2015 to date)
- ❖ Member of committee regarding Grant of Advance/Annual Increments to the Faculty members working Under Tenure Track System (Nov, 2014 to Dec, 2016)
- ❖ Member Annual stock checking committee of chemical store/ sectional store/ workshop Institute of Chemistry, University of the Punjab since 2012
- ❖ Member Sports committee, Institute of Chemistry, University of the Punjab since 2012
- ❖ Member Admission committee, Institute of Chemistry, University of the Punjab since 2012
- ❖ External Examiner for B.Sc and B.S (Hons) (Chemistry) Programme of University of the Punjab, Lahore
- ❖ Internal Examiner for B.S (Hons) and M.Sc (Chemistry) Programme of University of the Punjab, Lahore
- ❖ Paper setter of BS (Hons) Programme, Analytical Chemistry, of Colleges affiliated with University of the Punjab, Lahore.

- ❖ External Examiner (viva voce examination) of 27 BS students (9 from Lahore College for Women, University, 12 from Islamia College Cooper road, Lahore and 6 from Samanabad College, Lahore), 28 MSc student (UET, LHR), 7 MPhil student (UET)
- ❖ Reviewer for The Chemical Society of Ethiopia
- ❖ Reviewer for Journal of the Pakistan Institute of Chemical Engineers.

Member of Societies

- ❖ Royal Society of Chemistry, UK.
- ❖ Infrared Discussion Group (IRDG), UK.
- ❖ American Chemical Society, USA.
- ❖ Chemical Society, Pakistan.
- ❖ National Academy of young Scientist, Pakistan

Research Thesis Supervised

MSc Students:	Ongoing	3	Supervised	11
BS Students	Ongoing	2	Supervised	09
MPhil Students:	Ongoing	4	Supervised	15
PhD Students:	Ongoing	3	Thesis submitted	3

References:

On demand