**CURRICULUM VITAE**

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**DR. LATIF UR RAHMAN**

**Area of Interest:** Physical Chemistry (Nanotechnology and Electrochemistry):

Synthesis, Characterization and Applications (Developing Electrochemical Sensor for Detection of Carcinogenic and Environmental Toxin) of Monometallic (Au, Ag, Cu), and Bimetallic (Ag-Cu, Ag-Au, Au-Cu) Alloy Nanoparticles.

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**Career Objective:**

To equip myself with the practical knowledge, facing the challenges of the dynamic competitive environment in the field of chemistry and to prove myself, a team player by being a member of high professional, creative, open minded and productive educational institution / organization.

**Ph. D Research Project:**

Synthesis, Characterization and Applications of Bimetallic (Ag-Cu, Ag-Au and Au-Cu) Alloy Nanoparticles

**M. Phil Research Project:**

Synthesis and Characterization of Ag-Cu Bimetallic Alloy Nanoparticles

**Author of Books:**

1. ETEA MCQs Book Title: Test Your Level in Chemistry. For undergraduate students and competitive exams
2. Practical Note Books for Grade XI and Grade XII ISLAMIAN’S SERIES
3. Competitive Chemistry Books for Graduate Students

**Experimental Techniques Used:**

* UV-Visible Spectroscopy
* Fluorescence Spectroscopy
* X-Ray Diffraction Spectroscopy (XRD)
* Electrochemical Impedance Spectroscopy (EIS)
* Scanning Electron Microscopy (SEM)
* Transmission Electron Microscopy (TEM)
* High Resolution Transmission Electron Microscopy (HR-TEM)
* Energy Dispersive Spectroscopy (EDS)
* Cyclic Voltammetry (CV)
* Square Wave Voltammetry (SWV)
* Differential Pulse Voltammetry (DPV)
* Fourier Transformassion Infra-Red Spectroscopy (FTIR)

**Major Courses Studied:**

* Basic Physical chemistry, Inorganic chemistry, Organic chemistry. Applied/Industrial chemistry, Quantum chemistry and Electro chemistry.
* Advanced Chemical Kinetics
* Study of Advanced Composite Materials
* Biophysical chemistry
* Magnetic Resonance Spectroscopy (NMR and ESR)
* Advanced Surface chemistry
* Theoretical and Computational chemistry
* Statistical Mechanics and Thermodynamics
* Advanced Molecular Spectroscopy
* Physical Chemistry of Environment
* Advanced Chemistry of Colloid and Surfactants
* Chemistry of Inorganic Reactions Mechanisms
* Advanced Chromatographic techniques
* Advanced Chemistry of Organometallic Compounds
* Review Paper on Synthesis, Characterization and Applications of Au-Ag, Au-Pt and Au-Ru Alloy Nanoparticles
* Presentation on Synthesis, Characterization and Applications of Au-Ag, Au-Pt and Au-Ru Alloy Nanoparticles.

**Articles Presented in Conferences:**

1. 9th International and 21th National Chemistry Conference held on March, 13-16, 2011, at University of Karachi, Pakistan. “Synthesis and characterization of Ag-Cu alloy nanoparticles”.
2. 10th International and 22nd National Chemistry Conference held on November, 21-23, 2011, at University of Agriculture, Faisal Abad, Pakistan. ”Synthesis and electrochemical characterization of Ag-Cu alloy nanoparticles prepared in various ratios ”
3. 11th International and 23rd National Chemistry Conference held on October, 15-18, 2012, at National Center of Excellence in Physical Chemistry University of Peshawar, Pakistan. “Synthesis and spectroscopic characterization of Ag-Cu Alloy nanoparticles prepared in various ratios.
4. International Conference on Physical and Environmental Chemistry (ICPEC-2013) held on September, 9-11, 2013, ”Synthesis, characterization and electrochemical investigation of Ag-Au alloy nanoparticles for oxidation of pyrene on over oxidized polyprrol composites on modified Glassy Carbon Electrode” at Bara Galli Summer Campus University of Peshawar, Pakistan.
5. 12th International and 24th National Chemistry Conference held on October, 29-31, 2013, ”Synthesis, characterization and electrochemical investigation of Au-Cu alloy nanoparticles for oxidation of Anthracene on over oxidized polyprol composites on modified Glassy Carbon Electrode” at Bhauddin Zakria University, Multan, Pakistan.
6. ESCON, 2019, International conference on Environmental Toxicology and Health Organized by COMSATS University Islamabad. Electrochemical sensor for Detection of Environmental toxins and PAHs.

**Articles Published:**

1. **L. Rahman,** *et al,* Synthesis and Spectroscopic Characterization of Ag-Cu Alloy Nanoparticles Prepared with Various Ratios, *C. R. Chimie.* **15** (2012) 533–538.
2. **L. Rahman**, *et al*, Synthesis, Characterization and Applications of Au-Ag, Au-Pt and Au-Ru Alloy Nanoparticles*Rev. Adv. Mater Sci. J.* **30** (2012)133-149.
3. **L. Rahman**, *et al*, Synthesis, Characterization, and Applications of Au-Ag Alloy Nanoparticles for the Sensing of Environmental Toxin, Pyrene *J. App Electrochem*, 2015, 45, 463–472.
4. **L. Rahman**, *et al*, Spectroscopic analysis of Au-Cu alloy nanoparticles synthesized by chemical reduction method. *Adv. in Mat. Sc. and Eng.* 10 (2015) 1155-1164.
5. **L. Rahman** *et al*, Monitoring of 2-butanone using Ag-Cu bimetallic  
   alloy nanoscale electrochemical sensor, *RSC Adv.,* 2015, 5, 44427.
6. **L**. **Rahman** *et al,* Synthesis and characterization of metal nanoparticles and their effects on seed germination and seedling growth in commercially important Eruca sativa. *IET Nanobiotechnology* **DOI:**[**10.1049/iet-nbt.2015.0039**](http://dx.doi.org/10.1049/iet-nbt.2015.0039) ,  **Online ISSN**1751-875X **Available online:**29 January 2016**.**
7. **L. Rahman** *et al*, Seed germination and biochemical profile of silybum marianum exposed to mono metallic and bimetallic alloy nanoparticles, *IET Nanobiotechnology* **DOI:**[**10.1049/iet-nbt.2015.0050**](http://dx.doi.org/10.1049/iet-nbt.2015.0050) ,  **Online ISSN**1751-875X **Available online:**09 March 2016.
8. **L**. **Rahman** *et al* Silver–Copper Bimetallic Alloy Nanoscale Electrochemical Sensor for the Detection of 1,2 Dihydroxybenzene Compounds *Chem. Educator* **2015** (15) 1430-4171.
9. **Latif-ur-Rahman,** *et al*, Book Title: Sustainable Catalysis - Energy-efficient Reactions and Applications, Chapter, **Room Temperature** **Catalysis for Environmental Applications.** Edition: 1st Edition, Publisher: Wiley-VCH (**In Press**), Editors: Luque, Lam & Luque

10. **L**. **Rahman** *et al* Monitoring of an Anti-Ulcer Drug Rabeprazole Using Au-Pt

Bimetallic Alloy Nanoscale Electrochemical Sensor *Journal of The Electrochemical Society*, 2017 164 413-419.

**Articles Submitted:**

1. Monometallic (Au, Ag and Cu) Nanoparticles for oxidative properties of medicinally important plant Eruca sativa, *Journal of Biotechnology*.
2. Sensing of Anthracene using bimetallic (Au-Cu) nanoparticles based electrochemical sensor. RSC Advances
3. Electrochemical sensing of anthracene using nanoscale Au-Cu bimetallic alloy nanoparticles synthesized with various compositions

**Teaching Experiences:**

* Lecturer in chemistry at Govt. Degree College Dir, Khyber Pakhtunkhwa (2007-2009).
* Chemistry Tutor in Yasir Academy PIA Colony Rawalpindi, Punjab. (2009-2011)
* Lecturer in Chemistry University College for Boys, University of Peshawar, Khyber Pakhtunkhwa, Pakistan (5th September, 2011 to 2nd October, 2019).
* Lecturer in Chemistry at Institute of Chemical Sciences University of Peshawar, since 3rd October, 2019 to date

**Administrative Experiences:**

* Student Proctor University of Peshawar, for session 2005-2006.
* Life time Member of Chemical Society of Pakistan.
* Staff Proctor University of Peshawar for session, 2013-2014
* Staff Proctor University of Peshawar for session, 2014-2015
* Staff Proctor University of Peshawar for session, 2015-2016

**Foreign Experiences:**

* Research, at Engineering Research Center, Laboratory 781, University of Cincinnati, Ohio, USA, for three months (5th March, 2014 to 30th June, 2014).
* Research, at Department of Chemistry, Wright State University, Dayton, Ohio, USA for about two months (1st July, 2014 to 15th October, 2014).

**Computer Skill:**

Microsoft Office, Origin, Hyper chem., GW-basic, Chem. Draw, Chem. Office.

**Languages:**

* English
* Urdu/Arabic
* Pashto

**References:**

* + Prof. Dr. Afzal Shah, Chemistry Dept., Quaid-i-Azam University Islamabad, Pakistan.

**Email: afzals\_qau@yahoo.com**

* + Prof. Dionysius (Dion) D. Dionysiou, Ph.D.

UNESCO Co-Chair Professor of “Water Access and Sustainability and Professor of Environmental Engineering, 705 Engineering Research Center University of Cincinnati, Cincinnati, OH 45221-0012, USA.

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* + Prof. Suzanne Lunsford, PhD. Wright State University, Dept. of Chemistry, Dayton, Ohio, USA.

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