***CURRICULUM VITAE***

**Personal Data**

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| --- | --- |
| Name: | Dr. Rumana Qureshi |
| Husband’s Name: | Masood Latif Qureshi |
| Date of Birth: | 03-07-1953 |
| Domicile: | Punjab |
| Present Address: | H. 12, St. 1, Block E, Soan Gardens, Zone V, Islamabad |
| Permanent Address: | Same as above |
| Official Address: | Department of Chemistry, Quaid-i-Azam University, Islamabad-45320 |
|  | Email: [r\_quresh@qau.edu.pk](mailto:r_quresh@qau.edu.pk) |
|  | Ph: 051-90642142 (O)  051-5738043 (R) Mob: 0333-5164096 |

**Academic Record**

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| **Exam** | **Year** | **Institution** | **Subject(s)** | **Division/Grade** |
| Ph.D. | 1990 | Quaid-i-Azam University, Islamabad | Physical Chemistry | − |
| M.Phil. | 1982 | ′′ | ′′ | A Grade |
| M.Sc. | 1976 | ′′ | ′′ | A Grade |
| B.Sc. | 1973 | Punjab University | Physics, Chemistry, Mathematics | 1st |
| F.Sc. | 1971 | Sargodha Board | Physics, Chemistry, Mathematics | 1st |
| Matric | 1969 | ′′ | Science Subjects | 1st |

**Title of Ph.D. Thesis**

Standard Electrode Potential, Chemically Coupled & Irreversible Electrode Processes, Heterogeneous Electron Transfer Rate Constants: Theoretical, Experimental and Computational Investigations.

**Title of M.Phil. Thesis**

Second Reduction Potentials of Some Pyridinium Salts and Molecular Orbital Energies.

**Field of Specialization**

**1. Research in Electrochemistry, Computational/Theoretical Chemistry**

− Molecular orbital calculations.

* Application of molecular orbital calculations for the prediction of physical and chemical properties of large organic molecules.
* Electrochemical studies using cyclic voltammetric techniques.
* Electron transfer reactions.
* Potential energy surfaces for structure determination of ion pairs.
* Chemical and theoretical investigation of biologically active compounds.

**2. Software Development for Research in Theoretical Chemistry**

Developed the following software packages:

* Molecular Orbital Calculations package for Ph.D. work.
* Software of plotting Isoenergetic Contours and 3-Dimensional Potential Energy Surfaces.
* Software for the determination of Heterogeneous Rate Constant.

**3. Development of Educational Software**

− Educational Software study for UNESCO.

* Developed Computer Aided Lessons for studies of Secondary & Higher Secondary Schools.
* Developed Computer Aided Lessons on Pericyclic Reactions for teaching of Chemistry at M.Sc. and M.Phil. levels at the Quaid-i-Azam University.

**Experience**

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| --- | --- |
| Jan. 2004 to-date | Associate Professor, Quaid-i-Azam University, Islamabad |
| Nov. 2000 to Jan. 2004 | Assistant Professor, Quaid-i-Azam University, Islamabad |
| Aug. 99 − Oct. 2000 | Assistant Professor, Allama Iqbal Open University, Islamabad |
| Sept. 98 − Jan. 99 | Visiting Faculty, Hamdard University, Islamabad Campus |
| Oct. 94 − June 95 | Visiting Faculty, Quaid-i-Azam University, Islamabad |
| July 94 − July 96 | Research Associate, Quaid-i-Azam University, Islamabad |

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| 1990 − 1993 | Research Associate, Postdoctoral Fellow, Quaid-i-Azam University, Islamabad (Pakistan Science Foundation Project). Worked on a theoretical chemistry project relevant to polymerization, titled: “Potential energy surfaces of ion pairs derived from alkali or alkaline earth metals, reduction of substituted ethylenes”. |
| 1983 − 1984 | Research Assistant, Quaid-i-Azam University, Islamabad |
| 1977 | Scientific Officer, Pakistan Atomic Energy Commission |

**Academic Activities**

**Course Taught**

***M.Phil. Level***

Quantum Chemistry, Electrode Kinetics, Chemical Kinetics.

***M.Sc. Level***

Basic Mathematics for Chemists, Quantum Chemistry, Chemical Kinetics, Computer Aided Numerical Analysis, Electrochemistry.

**Awards and Merits**

1. First class first in M.Sc. Chemistry, Quaid-i-Azam University, Islamabad (1976).
2. First class first in F.Sc. (1971).
3. National Talent Scholarship and Silver Medal in F.Sc.
4. Third Prize in All Pakistan Software Competition held by Dr. A.Q. Khan Research Laboratories (1993).
5. Awarded Shield for “Computer Aided Lessons” at Expo93, Pakistan Science Foundation and COMSTECH, Islamabad (1993).
6. Awarded Shield for “Educational Software” at the Science & Technology Fair, Islamabad (1992).

**Papers Presented in Conferences**

1. International Scientific Spring March 02-06 2010 at NCP Islamabad, Pakistan. “Anti-cancer Drug Functionalized Gold Nanoparticles – Synthesis, Intracellular Delivery and Fate”. (Poster)
2. 8th International and 20th National Chemistry Conference, February 15-17, 2010, at Quaid-i-Azam University Islamabad, Pakistan. “Electrochemical Reduction of Camptothecin at Glassy Carbon Electrode”.
3. 8th International and 20th National Chemistry Conference, February 15-17, 2010, at Quaid-i-Azam University Islamabad, Pakistan. “Gold Nanoparticles: Drug Delivery Vehicles”.
4. 8th International and 20th National Chemistry Conference, February 15-17, 2010, at Quaid-i-Azam University Islamabad, Pakistan. “Prediction of interaction modes of Anti-cancer drugs with DNA using Cyclic Voltammetric, UV-vis Spectroscopic and Molecular Docking Techniques”.
5. 2009 International Bhurban Conference on Applied Sciences and Technology (IBCAST) at NCP Islamabad, Pakistan. “Electrochemical and Spectrophotometric investigations of interaction of some Standard and Potential Anti-Cancer drugs with DNA”.
6. 42nd IUPAC Congress Chemistry Solutions, 2-7 August, 2009 SECC, Glasgow UK. “Gold Nanoparticles as Carriers of Anti-cancer Drugs”. (Poster)
7. Ist National Symposium on Analytical, Environmental and Applied Chemistry 24-25 October, 2008, Shah Abdul Latif University, Khairpur Mir’s, Pakistan. “Electrochemical and Spectroscopic studies of the interaction of Ferrocenyl Chalcones with DNA”.
8. National Seminar on Frontiers of Chemistry, Islamabad, December 2003. “Computational Chemistry − Trends in Education and Research”.
9. 2nd International and 12th National Chemistry Conference, Jamshoro, Feb. 2002. “Electrochemical and Theoretical Calculations on Some Chalcones”.
10. 5th National Chemistry Conference, Islamabad, Oct. 1995. “Potential Energy Surfaces of Substituted Ethylenes”.
11. 19th IUPAC Symp. Chem. Natural Products, Jan. 1994. “Computer Aided Lessons on Pericyclic Reactions”.
12. 3rd National Computer Conference, Pakistan Computer Bureau, Jan. 1991, Islamabad. “A Development Strategy for Computer Aided Instructions in the Education System”.

**Workshops Attended**

1. Curriculum Development for Diploma Program in Laboratory Technology Sponsored by Common Wealth Learning Canada and Open University of Seri Lanka, Aug. 2000.
2. Development of Secondary School Education Material by SAARC Ipsett, Islamabad 1997.

**Workshops Conducted**

1. Course Coordinator, University Grants Commission, 1994. Conducted workshop on “Computer Applications in Chemistry”.

2. Course Coordinator, University Grants Commission, 1993. Conducted workshop on “Theoretical and Computational Chemistry” held for University teachers.

**M.Phil. Thesis Supervised**

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| **S. No.** | **Name of Student** | **Title** |
| 1. | Uzma Yasmin (2002) | Electrochemical and Theoretical Computational Investigations of Some Benzothiazepines and Chalcones |
| 2. | Abdur Rehamn (2003) | Electrochemical and Theoretical Computational Studies on Naphthoquinones |
| 3. | Mehwish Kiran (2004) | Theoretical/Computational Calculations, Cyclic Voltammetric Investigations and Heterogeneous Electron Transfer Rate Constants of Some Chalcones and Benzothiazepines |
| 4. | Saima Noreen (2004) | Hydrogen Bonding and Protonation Effect in Electrochemistry of Quinones |
| 5. | Asad M. Khan (2005) | Synthesis and Characterization of Rare Earth Orthoferrite Nanoparticles |
| 6. | Samia Saleemi (2005) | Effect of Catalyst and Dopants on Phase Transformations and Characteristics of Zinc and Copper Oxides |
| 7. | Fouzia Parveen (2006) | Drug-DNA Interaction Using Electrochemical and spectrophotometric method |
| 8. | Misbah Mumtaz (2006) | Synthesis and Characterization of Olivine-Type (LiNiPO4) and its Doped Analogues 2006 |
| 9. | Humaira Razzaq (2007) | Charge Transfer Complexes of σ and π Acceptors with Picolenes |
| 10. | Nosheen Iftikhar (2008) | Synthesis and Characterization of Co-doped Analogues of ZnO Nanoparticles |

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| 11.  12. | Jawairia Ambreen (2008)  Azra Yaqoob  (2008) | Chalcon-DNA Interaction Using Electrochemical and Spectrophotometric Method  Study of Protonating and Hydrogen Bonding Interaction of Quinones with some Biologically active molecules using Cyclic Voltammetric and Simulation Techniques. |
| 13.  14. | Niaz Muhammad (2010)  Abdur Rauf  (2010) | Corrosion Study of Copper Using Cyclic Voltammetry and Electrochemical Impedance Spectrosopy Techniques.  Determination of Interacting Modes of Anthraquinone Derivatives with DNA Through Cyclic Voltammetry and UV-Vis Spectroscopy. |

**Ph.D. Thesis in Progress**

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| **S. No.** | **Name of Student** | **Title** |
| 1.  2 | Afzal Shah  Farhat Saira | Study of Drug-DNA Interaction Using DNA Modified Electrodes  Electrochemical Impedance Spectroscopic Investigations of Drug-DNA Interactions using nanoparticles. |
| 3. | Fouzia Altaf | Impedance Spectroscopic Studies on Polymer Electrodes |
| 4. | Samia Saleemi | Synthesis and Characterization of Au Nanoparticles and Their Interaction with malignant cells |
| 5 | Humaira Razzaq | Spectroscopic and Electrochemical studies of Drug-DNA Interaction in the presence of nanoparticles. |
| 6. | Fauzia Parveen | Study of Drug-DNA Interaction Using Spectrophoto-metric, Electrochemical and Molecular Modelling Methods |

**Research Projects**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Project Title** | **Principal/Co-Principal Investigator** | **Amount (Rs.)** | **Sponsoring Agency** | **Duration** |
| Theoretical/computational and electrochemical investigations of benzothiazepines | PI | 70,000/- | URF | 2000-2001 |
| Electrochemical and theoretical density functional method for studying electron transfer reactions and intermolecular hydrogen bonding in quinones | PI | 10,000/- | URF | 2002-2003 |
| Synthesis and characterization of rare earth orthoferrile nanoparticles | PI | 40,000/- | URF | 2004-2005 |
| Study of Drug-DNA Interaction Using Spectrophotometric, Electrochemical and Molecular Modelling Methods | PI | 4300000/- |  | 2008-2010 |
| Study of Drug-DNA Interaction Using Electrochemical, UV Visible Spectrophotometric and Theoretical Computational Methods | PI | 100,000/- |  | 2006-2007 |

**Publications**

**Books**

1. Ansari, F.L.; Qureshi, R.; Qureshi, M.L., “Electrocyclic Reactions − from Fundamentals to Research”, Supplemented with Computer Aided Lessons,   
   Wiley − VCH, Weinheim, New York, 1999, ISBN 3-527-29755-3.
2. Chapter contributed to the Annual Review: Social Development in Pakistan − The State of Education 2002-03, Social Policy and Development Centre, ISBN 969-8407-01-4.
3. Chapter “Electrochemical and spectroscopic properties of ferrocenes and their relationship with biological and environmental applications” in book entitled” In: Ferrocenes: Compounds, Properties and Applications” contributed to Nova Science Publishers, Inc. New York, 2010, ISBN: 978-1-61761-880-2

**Research Papers**

1. Ansari, F.L.; Qureshi, R.; Qureshi, M.L.; Qureshi, F.S., “Computer Aided Lessons on Pericyclic Reactions”, Proc. 19th IUPAC Symp. Chem. Natural Products, 1995.
2. Mohammad, M.; Qureshi, R.; Khan, A.Y.; Begum, W.; Subhani, M.S., “Heterogeneous Electron Transfer Rate Constant and Marcus Theory”, Bull. Electrochem., 1994, 10(4-5), 218.
3. Qureshi, R., “Potential Energy Surfaces Calculations for Ion Pairs (Part I), A Comparison of Peacock and Simonetta Method”, J. Chem. Soc. Pak, 1993, 15, 114.
4. Mohammad, M.; Khan, A.Y.; Ashraf, N.; Begum, W., Qureshi, R., Heterogeneous Electron Transfer Rate Constants for the Second Reduction Process of Some Dinitroaromatics”, Collection Czech. Chem. Commun., 1992, 1, 57.
5. Qureshi, R., “A Development Strategy for Computer Aided Instructions in the Education System”, Prof. 2nd Nat. Comp. Conf., Islamabad, 1991.
6. Mohammad, M.; Khan, A.Y.; Subhani, M.S.; Begum, W.; Ashraf, N.; Qureshi, R.; Iqbal, R., “Protonation of Anion Radicals and Dianions of Some Dinitroaromatics”, Research on Chemical Intermediates, 1991, 16, 9-43.
7. Mohammad, M.; Qureshi, R.; Khan, A.Y., “Home Computer in Molecular Orbital Calculations, Part II”, Pak. J. Sci. Ind. Res., 1990, 33, 3.
8. Mohammad, M.; Dost, N.P.; Jalil, R.; Qureshi, R.; Salim, M., “Electron Affinities of Charged Species, Part II”, Bull. Electrochem., 1988, 4, 287.
9. Mohammad, M.; Ashraf, N.; Begum, W.; Qureshi, R.; Khan, A.Y., “Digital Simulation Method for the Evaluation….”, Bull. Electrochem., 1988, 4, 775.
10. Mohammad, M.; Qureshi, R., Khan, A.Y., “Home Computer in Molecular Orbital Calculations, Part I”, Pak. J. Sci. Ind. Res., 1987, 30, 359.
11. Mohammad, M.; Qureshi, R.; Tariq, M., “Reversible Electrode Potential……, Part II”, Bull. Electrochem., 1987, 3(3), 267.
12. Mohammad, M.; Qureshi, R.; Khan, A.Y.; Iqbal, R.; Electron Affinities of Charged Species, Part I”, Bull. Electrochem., 1986, 2, 567.
13. Mohammad, M.; Khan, A.Y.; Qureshi, R.; Iqbal, R., “Reversible Electrode Potential for Chemically Coupled…. Part I, Theoretical Considerations”, Bull. Electrochem., 1985, 1, 429.
14. Bhatti, N.K.; Subhani, M.S.; Khan, A.Y.; Qureshi, R.; Rahman, A., Heterogeneous Electron Transfer Rate Constants of Viologens Monocations at Platinum Disk Electrode, Turkish Journal of Chemistry, 2005, 29, 659.
15. Bhatti, N.K.; Subhani, M.S.; Khan, A.Y.; Qureshi, R.; Rahman, A., Heterogeneous Electron Transfer Rate Constants of Viologens at Platinum Disk Electrode, Turkish Journal of Chemistry, 2006, 30, 165.
16. Kiran, M.; Qureshi, R.; Ansari, F.L.; Subhani, M.S.; Khan, A.Y.; Rehman, A., Electron Affinities, Solvation Energies and Redox Potentials of Some Chalcones: Substituent Effects and Correlation with Semiempirical MO Energies, Turkish Journal of Chemistry, 2006, 30, 1-10.
17. Ahmad, S.; Khan, A.Y.; Qureshi, R., Electrochemical Study of Hydrogen-Bonding in Anthraquinones, J. Chem. Soc. Pak., 2006, 28(6), 542.
18. Ahmed, S.; Khan, A.Y.; Qureshi, R.; Subhani, M.S., Hydrogen Bonding Associations in the Electroreduced Intermediates of Benzoquinones and Naphthoquinones, Russian Journal of Chemistry, 2007, 43(7), 811.
19. Razzaq, H.; Qureshi, R.; Janjua, N.K.; Saira, F.; Saleemi, S., Charge Transfer Complexes of Picolenes with Sigma and Pi-acceptors, Spectrochim Acta A, 70 (2008) 1034-1040.
20. Subhani, M.S.; Aslam, S.; Qureshi, R.; Rehman, A., UV Spectroscopic Studies of Charge Transfer Complexes of 2-Hydroxy-1,4-naphthoquinone, J. Chem. Soc. Pak. Vol 30, No. 2, 2008.
21. Subhani, M.S.; Akram, A.; Qureshi, R.; Rehman, A., Investigation of Resonance Effect, Inductive Effect, Solvation Energies and Electron Affinities of Some Thiosemicarbazides, Hydrazides and Carboxylic Acids Through Linear Scan Voltammetry, J. Chem. Soc. Pak. Vol 30, No. 2, 2008.
22. Rahman. A; Qureshi, R;, Ahmad S. Electrochemical and Computational Interpretations of Hydrogen-bonding of Naphthoquinones with Methanol. J. Chem. Soc. Pak. Vol 30, No. 5, 2008.
23. Shah, A., Qureshi, R., Janjua, N. K., Haq, S. U., Ahmad, D., Electrochemical and Spectroscopic Investigations of Protonated Ferrocene-DNA Interaction, Analytical Sciences. 24 (**2008**) 1437-1441.
24. Shah, A., Khan M. A., Qureshi, R., Ansari, F. L., Nazar F. M., Shah S. S., Redox

behaviour of Anticancer Chalcones on a Glassy Carbon Electrode and Evaluation

of its Interaction Parameters with DNA. Int J. Mol. Sci. 9 (**2008**) 1424-1434.

1. Shah A., Qureshi R., Khan M. A., Ansari, F. L., Ahmed S. Determination of binding parameters and mode of Ferrocenyl Chalcone-DNA interaction. Bulletin of the Chemical Society of Japan 82 (**2009)** 453-457.
2. Rehman Z., Shah A., Muhammad N., Ali S., Qureshi R., Butler I. S., Synthesis characterization and DNA binding studies of penta- and hexa coordinated diorganotin (IV) 4- (4- nitrophenyl ) piperazine-1- carbodithioates. J. Organomet. Chem. 694( **2009**) 1998-2004.
3. Rehman Z., Shah A., Muhammad N., Ali S., Qureshi R., Butler I. S., Synthesis, Spectroscopic characterization, X-Ray structures and evaluation of binding parameters of new triorganotin(IV) dithiocarboxylates with DNA. Europ. J. Med. Chem. 44( **2009**) 3986-3993.
4. Muhammad N., Shah A., Rehman Z., Shuja S., Ali S., Qureshi R., Meetsma A., Tahir M. N., Organotin(IV) 4-nitrophenylethanoates: Synthesis, structural characteristics and intercalative mode of interaction with DNA. Journal of Organometallic Chemistry 694 (**2009**) 3431–3437.
5. Shah A, M. Khan A., Usman M., Qureshi R., Siddiqu M. and Shah S., Thermodynamic characterization of dexamethasone sodium phosphate and its complex with DNA as studied by conductometric and spectroscopic techniques. J. Chill. Chem. Soc. 54, (**2009**) 134-137.
6. Shah A., Diculescu, V. C., Muhammad N., Qureshi R., Ali S., Brett, A. M. O., Electrochemical reduction of nitrophenyl acrylate on glassy carbon electrode, Electroanalysis, 22 (**2009**) 121-127.
7. Shah A, Diculescu V. C., Qureshi R., Brett A. M. O., Electrochemical behavior of dimethyl-2-oxoglutarate on glassy carbon electrode, 77 (**2010**) 145-150.
8. Shuja S., Shah A, Rehman Z., Muhammad N., Ali S., Qureshi R., Khalid N., Meetsma A., Diorganotin(IV) derivatives of ONO tridentate schiff base: Synthesis, crystal structure, in vitro antimicrobial, anti-leishmanial and DNA binding studies. Europ. J. Med. Chem. Accepted 15 March **2010**.
9. Shah A, Qureshi R., M. Khan A., Khera R. A., Ansari, F. L., Electrochemical Behavior of 1-Ferrocenyl-3-phenyl-2-propen-1-one on Glassy Carbon Electrode and Evaluation of its Interaction Parameters with DNA.J. Braz. Chem. Soc. 21 **(2010)** 447-451.
10. Shah A., Zaheer M., Qureshi R., Akhter Z., Faizan M., Voltammetric and Spectroscopic Investigations of 4-Nitrophenylferrocene interacting with DNA. Spectrochimica Acta, 75 (**2010**) 1082-1087.
11. Shah A., Diculescu V. C., Qureshi R., Brett, A. M. O., Redox behavior of camptothecin on glassy carbon electrode, Bioelectrochemistry, 79, (**2010)** 173-178.
12. Altaf F., Qureshi R., Ahmad S., Khan A. Y., Naseer A., Electrochemical adsorption studies of urea on copper surface in alkaline medium, J. Electroanal. Chem. 642 **(2010)** 98-101.
13. Zaheer M., Shah A., Akhter Z., Qureshi R., Mirza B., Tauseef M., Bolte M., Synthesis, characterization, electrochemistry and evaluation of biological activities of some ferrocenyl Schiff bases, Article first published online: 2 July **2010**
14. Diculescu V. C., Militaru, A.*,* Shah A., Qureshi R., Tugulea L., Brett, A. M. O., [Redox mechanism of lumazine at a glassy carbon electrode](http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6TGB-5070DV3-1&_user=3415186&_coverDate=08%2F15%2F2010&_alid=1479805251&_rdoc=9&_fmt=high&_orig=search&_origin=search&_zone=rslt_list_item&_cdi=5250&_sort=r&_st=13&_docanchor=&view=c&_ct=11&_acct=C000060481&_version=1&_urlVersion=0&_userid=3415186&md5=9268b793e634bfdcfec74e7621285394&searchtype=a) , Journal of Electroanalytical Chemistry, 647, **(2010)** 1-7.