

CURRICULUM VITAE

Prof. Dr. Muhammad Raza Shah

International Center for Chemical and Biological Sciences,
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Father's Name: Khan Alam
Date of Birth: Feb. 18, 1976
Martial Status: Married
Qualification: Ph.D. in Chemistry

Distinctions and awards

- [1]. Civil award *Tamgha-i-Imtiaz* by President Islamic Republic of Pakistan in 2015
- [2]. Dr. M. Raziuddin Siddiqi Prize (2015) for Scientist Under 40 in the Field of Chemistry by Pakistan Academy of Sciences.
- [3]. Avecena Science & Innovation Award 2015 by Brain Trust UK
- [4]. Prof. Atta-ur-Rahman Gold Medal in Chemistry for the year 2006 by Pakistan Academy of Sciences.
- [5]. Abdus Salam prize in chemistry 2006 for young scientist of developing country by ICTP Italy.
- [6]. TWAS Young Affiliate 2010 from central and South Asia.
- [7]. Gold Medal 2014 and Life Time Achievement Award conferred by Mr. Nisar Khoro Provincial Education Minister Sindh on behalf of Bahauddin Zakariya Academy of Adibyat, Multan.
- [8]. Fellow International Union of Pure and Applied Chemistry
- [9]. Fellow the Chemical Society of Pakistan
- [10]. Mentor and Trainer of Two Bronze Medal Winner Pakistani Chemistry Olympiad Team Participated in 41st International Chemistry Olympiad, Cambridge (UK) 18th – 27th July 2009.

- [11]. Mentor and Trainer of Two Bronze Medal and One honorable mentioned Winners Pakistani Chemistry Olympiad Team Participated in 43rd International Chemistry Olympiad, Ankara (Turkey) 09th-18th July 2011.
- [12]. Mentor and Trainer of one Bronze Medal Pakistani Chemistry Olympiad Team Participated in 44th International Chemistry Olympiad, Washington (USA) 19th-27th July 2012.
- [13]. Mentor and Trainer of Three Bronze Medal Pakistani Chemistry Olympiad Team Participated in 45th International Chemistry Olympiad, Moscow (Russia) 19th-27th July 2013.
- [14]. Mentor and Trainer of Three Bronze Medal Pakistani Chemistry Olympiad Team Participated in 46th International Chemistry Olympiad, Hanoi (Vietnam) 20th-29th July 2014.
- [15]. Elected Vice President (Sindh), The Chemical Society of Pakistan since 2010-2015.
- [16]. Deputy Coordinator of Chemistry for National Science Talent Contest (STEM Careers Program since 2008.
- [17]. Elected Secretary General, The Chemical Society of Pakistan Since 2015 to date

List of Positions held.

Year	Positions	Responsibilities
January 2017 To Present	Professor	Leading a research group of supramolecular chemistry, nanochemistry, teaching course on synthetic organic chemistry, chemical safety and security at Ph.D. level
January 2012-to present	General Manager CBSBR	Head of the Center for Bioequivalence and Bioassay Research (CBSBR). Leading all the bioequivalence studies of the center. Taking care of every matter of the CBSBR like installation, proper functioning of the instruments. Monitoring all activities of various sections of CBSBR
September 2012 to December 2016	Associate Professor	Leading a research group of supramolecular chemistry, nanochemistry, teaching course on synthetic organic chemistry, chemical safety and security at Ph.D. level
March 2004-to September 2012	Assistant Professor	Leading a research group of Supramolecular chemistry. Involved in teaching to Ph.D. students. Incharge of supramolecular and chemistry laboratories Pakistan
2006-2007	Postdoctoral Fellow	Characterization of tBLM by AFM, STM, SPR and other surface related techniques Germany
2003-2004	A3 Assistant	Postdoctoral researcher working on the synthesis and characterization of some bio-organic compounds at Geneva University Switzerland.
2001-2003	Research Fellow	Ph.D. research fellow at Max-Planck Research Institute for Polymer Mainz Germany.
2000-2001	Junior Research Fellow	International Center for Chemical and Biological Sciences, HEJ Research Institute of Chemistry University of Karachi.

Research Grants Won as Principal Investigator:

- [1]. Supramolecular Multifunctional Barrel-Stave Pores. Sponsored by Higher Education Commission of Pakistan reference number is 20-351/R &D/2nd Phase/05/322 worth 3 million rupees.
- [2]. A Research Grant of Three Million Rupees Awarded by Higher Education Commission of Pakistan reference number is 20-616/R&D/06/679

- [3]. Supramolecular Nanotubes and Ring Polymers, Molecules for the Future.
Sponsored by Organization for the Prohibition of Chemical Weapons (OPCW)
December 2005 to December 2008. Project Number L/ICA/ICB/104543/05 worth
of 21424\$
- [4]. Design, Synthesis and Characterization of *p*-Octiphenyloctacalix[4]arene a
Supramolecular multifunctional pore having practical applications in medicine and
mechanics Sponsored by COMSTECH-ISESCO worth of 10,000 USD approved on
June 2006 to June 2008. Project NO 3(60)/06-COMSTECH
- [5]. Bioassay guided investigation of the chemical and biological constituents of the
drinking water resources of Karachi city Sponsored by IFS (International
Foundation for Science) worth of 8600 USD approved on April 2008 to April 2009.
Project No AW/17980,
- [6]. Project Member of NGS Grant #8034-06 by “The National Geographic Society
Washington DC USA.
- [7]. Design, Synthesis and Characterization of *p*-octiphenyloctacalix[4]arene a
supramolecular multifunctional pore having practical applications in medicine and
mechanics sponsored by Pakistan Science Foundation reference number PSF/Res/S-
HEJ/Chem(403) worth 1.15 million rupees.
- [8]. Understanding Ligand Selectivity in Nanocluster Synthesis, Sponsored by Third
World Academy of Sciences Ref No: 11-109 RG/MSN/AS_C; UNESCO FR:
3240262659 worth of US\$ 13,000.
- [9]. Development of a catalytic process for the conversion of mixed waste plastics into
transportation fuels Sponsored by Organization for the Prohibition of Chemical
Weapons (OPCW) February 2015 to January 2017 Reference Number:
L/ICA/ICB/194480/14.
- [10]. High Resolution Chemical Characterization of *Yersinia Pestis* Cells Within Soil
Matrices: Implications for Understanding Natural Foci and Telluric Reservoirs of

Plague by Cooperative Biological Engagement Program Department of Defense
USA January 2017 to January 2019.

Ph.D. Thesis Supervised:

- 1) Zahid Hussain title of thesis: Design, Synthesis and Characterization of *p*-octiphenyloctacalix[4]arene a Supramolecular Multifunctional Pore Having Practical Applications in Medicine and Mechanics
- 2) Qamar Ali title of thesis: Design, characterization and Synthetic Studies of Artificial Ion Channels involving π -barrels.
- 3) Asra Mustafa title of thesis: Artificial ion channel, a novel supramolecular synthetic approach in Pakistan
- 4) Said Nadeem title thesis: An innovative approach towards topologically important macrocycles and biotest-directed analyses of organic compounds in water of Karachi
- 5) Mamoona Khatoon title thesis: Synthesis of Large Macrocycles, a Journey towards Supramolecular Nanotube and Polymer
- 6) Muhammad Ateeq title of thesis: Gold Nanoparticles Based Studies of Natural Products for Enhanced Photophysical and Biological Applications
- 7) Burhan Khan title of thesis: Design, Synthesis and Characterization of Macro-Molecules based on Calix[4]arene and Biphenols as New Motifs in Supramolecular Chemistry
- 8) Ayaz Anwar title of thesis “Gold Nanoparticles Based Studies of Natural Products for Enhanced Photophysical and Biological Applications”
- 9) Farid Ahmed title of thesis “Synthesis and Characterization of Thioether based Supramolecules and their Biological Evaluation”

- 10) Kiramat Shah title of thesis “Synthesis, Characterization and Photophysical Properties of Fluorene Based Macrocycles and Their Precursors”
- 11) Muhammad Rab Nawaz title of thesis: Design, Synthesis, and Characterization of PDI Barrel and search for Barrel forming compounds in *Rubus ellipticus* and DHA derivatives.

M.Phil Thesis supervised:

- 1) Mr. Tahir (M.Phil awarded-2014) Title of thesis: Design, synthesis and characterization of Hetero-macrocycles` s based chemosensors
- 2) Mr. Mumtaz Ali (M.Phil awarded-2015) Title of thesis: Synthesis and Characterization of Supramolecular Receptors for toxic metals and organic molecules
- 3) Ms. Ambreen Zia (M.Phil awarded-2016) Title of thesis: Synthesis and Characterization of *new* calix[4]arene and its derivatives
- 4) Ms. Atia Shamim (M.Phil awarded-2016) title of thesis : Preparation and Characterization of Silica Hybrid Magnetic Nanoparticles and their Analytical Applications

Scholarships awarded and Funded visits:

- Postdoctoral Fellowship from Max-Planck Research Institute for Polymer 2006-2007
- Scholarship Awarded by Swiss National Science Foundation as Postdoctoral Researcher for the Year 2003 to 2004 at Geneva University Switzerland.
- BAT-1/2 Fellowship Awarded by Max-Planck Chemical Society.2002-2003
- Max-Planck International Research School for Material Science Fellowship 2001-2002

- Junior Research Fellowship Awarded by International Center for Chemical Sciences, H.E.J. Research Institute of Chemistry, University of Karachi, Pakistan.2000-2001
- Scholarship Awarded by the Political Agent (On behalf of Governor N.W.F.P) Mohmand Agency from 1994 up to 1999 on account of best Academic Performance.
- Higher Education Commission Scholar and Visiting Professor Gomal University DI Khan May 2005 to June 2005
- Higher Education Commission Scholar and Visiting Professor to Department of Chemistry Peshawar University in October 26-2nd November 2006.
- A funded visit to China for participation and delivering a lecture in second Sino-Pakistan Bilateral Workshop on Chemical Sciences, April 17-20, 2006 Shanghai, China by Chinese Academy of Sciences and Ministry of Science and Technology of Pakistan.
- Whole trip is financed by Max-Planck Research Institute of Polymer to present our work in the AFM BioMed Conference Barcelona Spain 19-21 April 2007.
- A funded visit to Bangladesh Dhaka sponsored by International Foundation for Science to attend a training workshop entitled “International workshop on scientific methodology, development of grant applications for International Foundation for Science, development of scientific manuscript for publications” held on October 20-27th 2007.
- A funded visit to LUMS Lahore sponsored by organizing committee of the workshop to deliver a lecture on the role of Nanomaterial on Drug Delivery and Cancer Treatment held on July 28-29th 2008.

Conference Symposium Organized:

- Organizing Secretary of International Symposium on Nanochemistry 8th -9th January 2006.
- Organizing Secretary of National Workshop on Chemical Laboratory, Safety and Security in Universities of Pakistan 22nd-23rd Feb 2011, ICCBS-H.E.J. Research Institute of Chemistry University of Karachi.
- Coordinator Pak-US Workshop on the applications of Nanotechnology held on 21-27th May 2010 NCP Islamabad.
- Organizing Secretary of National Workshop on Chemical Laboratory, Safety and Security in Universities of Pakistan 05th -7th June 2012, ICCBS-H.E.J. Research Institute of Chemistry University of Karachi.
- Organizing Secretary of PAK-US Workshop on Applications of Nanotechnology May 29th -31st 2012, ICCBS-H.E.J. Research Institute of Chemistry University of Karachi.
- Secretary 5th National Chemistry Talent Contest Program 1st Camp held on October 10-16, 2008 at ICCBS-H.E.J. Institute of Chemistry University of Karachi.
- Secretary 5th National Chemistry Talent Contest Program 2nd Camp held on Feb 15-26, 2009 at ICCBS-H.E.J. Institute of Chemistry University of Karachi.
- Secretary 5th National Chemistry Talent Contest Program 3rd Camp held on June 20-July 10, 2009 at ICCBS-H.E.J. Institute of Chemistry University of Karachi.
- Secretary 6th National Chemistry Talent Contest Program 1st Camp held on 14th August 21 August, 2009 at ICCBS-H.E.J. Institute of Chemistry University of Karachi.
- Organizer 1st Symposium on Bioequivalence and Bioavailability Studies at International Center for Chemical and Biological Sciences University of Karachi dated 15 – 16 April 2014

- Organizer 2nd Symposium on Bioequivalence and Bioavailability Studies at International Center for Chemical and Biological Sciences University of Karachi dated 18-19, 214
- Organizer National workshop on Chemical and Biological Laboratory Safety dated September 23-24, 2014 at International Center for Chemical and Biological Sciences University of Karachi
- Organizer of 3rd National Symposium on Bioanalytical and Bioequivalence Studies International Center for Chemical and Biological Sciences University of Karachi dated 18-19 August 2015

Membership:

- Member of Max-Planck Research School for Material Sciences (2002)
- National Representative in Polymer Division, International Union of Pure and Applied Chemistry (IUPAC) 2008-2011.
- Fellow International Union of Pure and Applied Chemistry (IUPAC)
- Member of Nanotechnology Foresight`s expert panel-2014, Pakistan Council for Science & Technology, Ministry of Science and Technology Pakistan
- Member of expert panel in chemical sciences for Consultative Meeting - OIC Summit on Science and Technology-2014
- Member Board of Studies Department of Chemistry Jinnah Women University Karachi since 2012 till today.
- Life Member of Pakistan Chemical Society
- Member of Swiss Chemical Society (2003)

Teaching Experience:

Mainly involved in the teaching of C-C Bond forming reactions and rearrangement course to M.Phil/Ph.D students covering the following topics.

- A) C-C single bond forming reactions (including asymmetric reactions).
- i) Alkylation/acylation of aldehydes, ketones, esters, nitriles, amides, and their derivatives. Problems of C vs O alkylation / acylation.
Kinetic vs thermodynamic products. Reactions of kinetically generated vs thermodynamically generated enolates and other anions.
 - ii) Alkylation / acylation of β -dicarbonyl compounds and other active methylene compounds (C vs O alkylation / acylation). Alkylation / acylation of dianions.
 - iii) Alkylation / acylation of N, S, P, Se, Si and similarly stabilized carbonions, umpolung of carbonyl and other functionalites.
 - iv) Alkylation / acylation of organocoppers, α -allyl systems, and other organometallic intermediates.
 - v) Nucleophilic addition of electron-deficient carbon, Aldol type addition (inter- and intramolecular), asymmetric Aldol type reaction, Cram and Felkin models. How to violate Cram's rules, 1,2 addition of boron and zinc enolates. Other 1,2 addition (or addition elimination processes). Grignard-type reactions 1,4 additions, 1,4 addition of organometallic intermediates), alkylation / acylation of primary intermediates generated by 1,4 or other 1, n additions.
Alkylation / acylation of enamines and similar species. Alkylation / acylation of alkyl and alkenyl silanes. Other C-C single bond forming processes not covered above
- b) C-C double bond forming reactions. Elimination reactions, Wittig-type olefinations and their modifications, preparation of trans vs cis double bonds. Stereospecific synthesis of tri- and tetrasubstituted olefins. Preparation of conjugated and non-conjugated polyene systems. Preparation of olefins from acetylenes. Preparation of cyclic olefins, and polyenes. Allene forming reactions. Olefins by retro Diels-Alder and other

electrocyclic processes. Preparation of heteroatom substituted olefins. Olefins conjugated to electron rich or electron – deficient groups.

- c) C-C Triple bond forming and related reactions. Preparation of terminal and non-terminal acetylenes ene-yne and heteroatom substituted acetylenes and their synthetic utility Other C-C multiple bond forming reactions (not included so far).
- B) Rearrangement: Covering 100 well known rearrangements.
- C) Teaches Course on Laboratory Safety and Security
- D) Teaches Advanced Stereochemistry

Research Experience:

Doctoral Research:

- Worked on bioassay directed phytochemical investigation of Pakistani medicinal plants as a Ph.D. Research Fellow under the supervision of Prof. Dr. Abdul Malik (*Sitara-i-Imtiaz*) since April 2000 to April 2001 at International Center for Chemical Sciences H. E. J. Research Institute of Chemistry, University of Karachi, Karachi-75270, Pakistan.
- Synthesis of highly functionalized [2]catenanes and their constitutional isomers at Max-Planck Research Institute for Polymer Mainz Germany in the research group of Prof. Wegner under the supervision of Prof. Dr. Adelheid Godt as Ph.D. thesis since May 2001 to Feb 2003.

This Ph.D work resulted in the synthesis of three new catenane molecules and their constitutional isomers in 23 consecutive steps which are high yielding and reproducible involving a variety of reactions like oxidation, reduction, protecting group chemistry, addition, substitution, metal catalyzed coupling reaction, etc.

- Oligodisulfide oligo [2]catenane have also been synthesized for studying material properties.

Postdoctoral Research Experience:

- **1st Postdoc:** Postdoctoral work was carried out on the synthesis of rigid rod β -barrel since March 2003 to March 2004 in the group of Prof. Stefan Matile. Synthesis of various pentapeptides were pursued and attached to octiphenyl rod to form peptide containing β -barrel. This β -barrel showed some exciting properties, like catalyzing reactions, and enzyme sensing. Some synthetic work on the synthesis of porphyrin molecules was also carried out during postdoctoral duration.
- **Second Postdoc:** Second postdoc was carried in the group of Prof. Wolfgang Knoll at Max-Planck Research Institute for Polymer Mainz Germany from June 2006 to June 2007 on the characterization of tethered lipid bilayer by atomic force microscopy, scanning tunneling microscopy and surface plasmon resonance spectroscopy.

Presentations in conferences/meeting etc.

- Active participation in four summer schools organized by Max-Planck International Research School for Material Science in Germany since 2001-2003
- Presented talks as member of Max-Planck International Research School for Material Science in ETH Zurich, (Switzerland) entitled “Giganto cycles”.
- Delivered a talk at Max-Planck Research Institute for Polymer Mainz Germany entitled “Design, Synthesis and Characterization of asymmetrical [2]catenane 18 December 2001.
- Delivered talk at Organic Chemistry Department University of Geneva entitled “Synthesis and Characterization of [2]catenanes and their Constitutional Isomers”
- Deliver a Talk in a Symposium Organized in the Memory of late Prof. Opellzer at Organic Chemistry Department University of Geneva at the title “Beyond Rigid Rod β -barrels.”
- Delivered a Lecture at Quaid-e-Azam University in 5th International and 15th National Chemistry Conference at 26th November 2004 entitled “Supramolecular Chemistry a Journey of Chemist.

- Delivered a Series of 12 lectures as Higher Education Commission of Pakistan's Visiting Scholar and Visiting Professor at Gomal University D.I. Khan on various aspects of ^{13}C -NMR spectroscopy and 2D-NMR spectroscopy 7th May 2005 to 21st of May 2005.
- Delivered an Invited Lecture at Federal Urdu University of Arts and Technology 23rd September 2005 entitled "A Chemist Approach to Supramolecular systems"
- Delivered a talk in the second Sino-Pakistan Bilateral Workshop on Chemical Sciences, April 17-20, 2006 Shanghai, China entitled "Ultra Large Rings".
- Deliver a talk at Max-Planck Research Institute for Polymer Mainz Germany 06-11-2006 entitled "Chemistry in Pakistan and *t*BLM seen by AFM"
- Delivered a talk on the role of Supramolecular Chemistry in Drugs at one day seminar held 10th September 2007 in NIBGE Faisalabad.
- Deliver talk at 18th National Chemistry Conference 25th -27th Feb. 2008, held at Institute of Chemistry University of Punjab. Title. Characterization of Protein ion Channels via AFM.
- Delivered a talk on the role of Nanomaterial in Drug Delivery and Cancer Treatment at LUMS Lahore July 28-29 2008 at LUMS Lahore
- Attended 19th National Chemistry Conference held in Baragalli during June 09-11, 2009.
- Deliver a lecture on the Design, synthesis and characterization of Nanoparticles in Workshop on Application of Nanotechnology held 31st May-04 June 2010, National Center for Physics Quaid-e-Azam University Islamabad.
- Deliver a lecture on Supramolecular Chemistry at HEJ in three days German alumni conference with the title Pakistani and German Universities- Joining Forces for Better Future from 29-31 October 2010 in Islamabad Club, Islamabad.

- Deliver a lecture on Supramolecular Nanopores in 1st International Symposium on *Nanomedicine: Past, Present & Future Prospects*, December 20-21, 2010 at ICCBS University of Karachi
- Deliver a lecture on the role of supramolecular nanopores in 12th International Symposium on Natural Product Chemistry November 22 - 25, 2010 at ICCBS Pakistan
- Deliver lecture on the dual use of chemicals in National Workshop on Chemical Safety and Security in Universities of Pakistan 22-23rd Feb 2011 held at ICCBS
- Deliver lecture as guest speaker in celebration of international year of chemistry at department of chemistry University of Malakand on Supramolecular multifunctional pores on 14th July 2011
- Deliver lecture as guest speaker in celebration of international year of chemistry at National Center of Excellency University of Peshawar on A supramolecular approach to multifunctional pores on 17th July 2011.
- Deliver Lecture in the first International Science conference Feb 7-9 2012. Jointly organized by the Arid Agriculture University Rawalpindi and Pakistan Academy of Sciences
- Deliver Lecture in the Techno Mot Conference May 5-7 2012. Organized by the COMSATS Abbottabad
- Deliver lecture in the Regional Workshop on Chemical Laboratory, Safety and Security in Universities of Pakistan 05-6th June 2012, ICCBS-H.E.J. Research Institute of Chemistry University of Karachi.
- Deliver a Lecture in 4th Workshop on Skill development on June 27th 2012 Jointly Organized by the National Academy of Young Scientists and Biochemistry Department University of Karachi

- Deliver Plenary Lecture in the 11th International and 23rd National Chemistry Conference on Past, Present and Future of Journal of the Chemical Society of Pakistan October 15-17th 2012.
- Deliver a Keynote Lecture in the 11th International and 23rd National Chemistry Conference on Synthesis of [2]catenane an exciting aspect of supramolecular chemistry October 15-17th 2012.
- Deliver Invited Lecture in the International Conference on Physical and Environmental Chemistry (ICPEC-2013) from 9 – 11 September 2013 in Nathiagali KPK.
- Deliver Invited Lecture in 10th International Symposium on Analytical and Environmental Chemistry *December 02-04, 2013*
- Deliver Invited Lecture on Nanotechnology and its Applications” at the DHA Suffa University on 13th December, 2013
- Deliver Plenary Lecture on Nanotechnology the Power of Small at LUMS International Symposium on Nanomaterials, Potential Applications and Challenges, on October 31, 2013
- Deliver a lecture on Current Applications of Nanotechnology in Medicine 10th of April 2013 at Ziauddin College of Pharmacy, Ziauddin Univerisity.
- Deliver a lecture on Excitement of Nanotechnology in Medicine 10th of May 2013 at Ziauddin College of Pharmacy, Ziauddin Univerisity
- Deliver a lecture on Application of Nanotechnology on 20th June 2013 at Department of Chemistry University of Karachi.
- Deliver a lecture on the role of Nanotechnology in Textile Chemistry” on 16th December 2014 in Department of Chemistry, Federal Urdu University of Arts, Science and Technology Gulshan-e-Iqbal Campus, Karachi

- Delivered a lecture on the Application of AFM for the characterization of Microorganisms during TWAS 25th General Meeting which took place from 26-29 October 2014 in Muscat, Sultanate of Oman.
- Delivered a lecture in meeting entitled “Evaluation/meeting of HEC Recognized Journal on June 19, 2014 at HEC Regional Center Lahore.
- Delivered a lecture entitled “National symposium on Micro & Nanotechnology and control of systems on network” on 11th April 2014 at Pakistan Navy Engineering College Karachi
- Delivered a lecture entitled “Inform Consent Form and Subject Rights in Clinical Research” at 1st Symposium on Bioequivalence and Bioavailability Studies at International Center for Chemical and Biological Sciences University of Karachi dated 15 – 16 April 2014
- Delivered a lecture entitled “The Role of IRB or Independent Ethic Committee in Clinical Trial” at 2nd Symposium on Bioequivalence and Bioavailability Studies at International Center for Chemical and Biological Sciences University of Karachi dated 18-19, 214
- Delivered a lecture entitled “Chemical Laboratory Safety” at National workshop on Chemical and Biological Laboratory Safety dated September 23-24, 2014 at International Center for Chemical and Biological Sciences University of Karachi
- Delivered a lecture in 1st International Pharmacy Conference, Emerging Fields of Pharmacy on 19-21st September 2014, Faculty of Pharmacy, Ziauddin University Karachi
- Delivered a lecture entitled “Challenges & Opportunities in Biomedical Research in the 21st century” in the Department of Biological and Biomedical Sciences, Aga Khan University, Karachi at its Annual Research Day on January 9, 2015 in the AKU

- Delivered a lecture in Biosafety Training Workshop November 13th 2015, Arts Auditorium University of Karachi, and Organized by National Academy of Young Scientists.
- Delivered a lecture in One Day Seminar on Young Researchers' Skills Development October 21, 2015 Organized by National Academy of Young Scientists (NAYS[®]), Pakistan & SZABIST, Karachi at Auditorium of Shaheed Zulfikar Ali Bhutto Institute of Science and Technology (SZABIST), Karachi
- Delivered a lecture entitled "Principles of Ethical Research" at 3rd National Symposium on Bioanalytical and Bioequivalence Studies International Center for Chemical and Biological Sciences University of Karachi dated 18-19 August 2015
- Delivered a lecture on the role of macrocycles at National Center of Excellence for Physical Chemistry University of Peshawar on 23rd November 2015 at NCEP Auditorium.
- Workshop for Journal Editors on Publication Ethics" in Marriott Hotel, Islamabad, Pakistan on Feb 4th, 2015

Technical training:

- Operational Expertise in Scanning Tunneling Microscopy.
- Operational expertise in Atomic Force Microscopy both in liquid and air.
- Operational expertise in 1D and 2D NMR spectrometry, the training was obtained at Max-Planck Research Institute for Polymer Mainz Germany.
- Operational skills of HPLC and other sophisticated chromatographic techniques.
- Operational and technical skills of Glove Box
- Expertise in Schlenk and vacuum techniques for oxygen sensitive reactions.

- Got training on how to write an effective project and a manuscript sponsored by International Foundation for Science at Dakha Bangladesh. The title of training workshop was International workshop on scientific methodology, development of grant applications for International Foundation for Science, development of scientific manuscript for publications, held at Bangladesh Center for Advancement of Science on October 20-27th 2007.