K. Shahzad Baig, M.A.Sc., Ph.D., P. Eng., F.T.S.C.

Haripur, Pakistan || Cell: +92 335 611 9996 || khurram.shahzad@paf-iast.edu.pk **Baig.Toronto@yahoo.ca**

Committed to excellence in teaching and research

Education

- **Ph.D. (Chemical Engineering)** **2008 -2016**
  Chemical Engineering, Ryerson University, Toronto, Canada
- **M.A.Sc. (Chemical Engineering)** **2008**
  Water and Wastewater Treatment Technology, Ryerson University, Toronto, Canada.
- **Protective Coatings Specialist** **2001**
  NACE International, Houston, USA
- **Endorsement for Advanced Studies in Applied Sciences** **1988**
  Meadowbank College of TAFE, Sydney, Australia
- **Bachelor of Science in Chemical Engineering** **1985**
  University of the Punjab, Lahore, Pakistan

- Developed curriculum for Petroleum Engineering Technology for National Technology Council.
- Developed curriculum for grad studies for Chemical Engineering at University of Wah.
- Published in 14 peer-reviewed high-impact journals with 300 citations (Google Scholar) and over 30,000 reads (ResearchGate).
- Presented research papers in 24 international conferences and public seminars; 3 poster papers
- Reviewer Board Member of MDPI Journals

- Accredited for teaching at Higher Educational Institutions by SEDA-UK,
- Approved supervisor for graduate (Master and Ph.D.) research students.
- Approved evaluator for Outcome-based education (OBE) system evaluator in accordance with Washington Accord.

Global Presence:
LinkedIn: https://www.linkedin.com/in/k-shahzad-baig-03822a13/
Google Scholar: https://scholar.google.com/citations?user=F9swfq8AAAAJ&hl=en

Professional Experience

Associate Professor **2024- Present**
Department of Chemical and Energy Engineering, Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur, Pakistan

Chairperson **2020-2024**
Department of Chemical Engineering, University of Wah, Pakistan

- ✓ Launched and Managed five (5) programs in my department.
- ✓ Approved evaluator for Outcome-based education (OBE) system in accordance with Washington Accord.

- ✓ Developed, directed, coordinated, managed and monitored strategic and tactical plans for multiple and complex programmatic accreditation, preparation of documents, obtaining No Objection Certificates (NOCs) from Board of Governors (BOGs) and Higher Education Commission (HEC) to start new programs and launched following:

    - Master's degree in Chemical Engineering
    - Doctoral degree in Chemical Engineering
    - B. Tech. in Petroleum Engineering Technology
    - B. Tech in Chemical Engineering Technology

- ✓ Supervised Masters theses and Doctoral dissertations
- ✓ Served as a primary resource in the Academic governance structure for compliance issues related to state boards regulatory approvals. Provided comments and feedback on emerging regulations and mitigation suggestions. Held active role in Management Team
- ✓ Demonstrated strategic thinking and planning abilities. Collaborating other universities for academic coordination (students and faculty exchange, research facilities sharing, co-supervision of thesis supervisors, Provide services as external supervisor.
- ✓ Contributed to business development of institute such as consultancy to public. Supported development of new opportunities, including preparation of technical proposals and cost estimates.
- ✓ Strong leadership skills to mentor faculty and staff to develop their skill sets including technical skills, project experience, and general consulting and decision-making skills
- ✓ Actively participated in the selection, hiring, and ongoing development of full-time and contract faculty and staff within the department.
- ✓ Collaborated with the Dean to the develop of multi-year capital plans. Develop, monitored, and supported budget activity for the respective program areas, and ensure the attainment of annual financial targets.
- ✓ Directed and/ or coordinated personnel actions including recruiting, new hire actions, interviewing and selection of new staff, salary determinations, training, and performance with industry to win projects for bachelor and masters students. Continuing to build strong partnerships with both internal and external partners.
- ✓ Managed admissions and achieved targets.
- ✓ Motivated researchers and the Department of Chem Engg won Research Funding from HEC. For the first time.
- ✓ Asked faculty to prepare instructional material, ensure safe operations, upgraded laboratory equipment, hired and supervised student workers, purchasing inventory, and overall management of laboratory inventory and personnel. Implemented lab safety protocols for all chemical engineering labs.
- ✓ Ensured all courses and programs offered within the department meet or exceed established internal and external standards for accreditation,
- ✓ Developed, monitored, and supported budget activity for the respective program areas, as well as monitor and ensure the attainment of annual financial targets.

Assistant Professor **2020-2024**

Department of Chemical Engineering, University of Wah, Pakistan

Commissioned to teach chemical engineering at University of Wah. Having a strong commitment to the profession, through outstanding activities in the areas of research, teaching and services, I accepted the challenge.

Teaching undergraduate courses in the specialty area of Mass Transfer Fundamentals, Separation Processes, Environmental Engineering. Instructed laboratory classes as well. Supervising undergraduate Project Design Reports. Teaching Advance Chemical Reaction Engineering and Environmental Engineering to Masters Classes. Advise graduate research students.

- ✓ Published research (environment, biomaterials and catalysis) results in professional journals.
- ✓ Member departmental professional service committee.
- ✓ Made decisions in ambiguous situations within established process, procedures and guidelines pertaining to their own research project team
- ✓ Used own scientific judgment to apply and adapt standard methods and techniques by applying prior work experience and consulting others appropriately
- ✓ Developed estimates of time and resources for projects' milestones.
- ✓ Presented at meetings, seminars, and conferences
- ✓ Supervised Masters theses and Doctoral dissertations
- ✓ Used modern tools in delivery of lectures
- ✓ Explained complex and difficult terms in easy to understandable words.
- ✓ Capable to establish, nurture, and promote a culture of innovation. Provided day to day supervision to student related to project activities.
- ✓ Published research (environment, biomaterials and catalysis) results in professional journals. Exceptional interpersonal and communication skills. Advise graduate / undergraduate research students. Member departmental professional service committee. Chair, curriculum and course development committee.
- ✓ Independently reviewed engineering documents, steer energy balance, and collaborate with external entities for project implementation in the plant.

Assistant Professor **2019-2020**
School of Science and Environment, Memorial University of Newfoundland, Canada

- ✓ Helping students grow their own knowledge, sharing expertise, and advancing the field of chemistry and knowledge in general through research.
- ✓ Teaching responsibilities for undergraduate and graduate level courses and seminars, as well as research activities involving both independent work and work with graduate / undergraduate students.
- ✓ In-depth knowledge of chemistry and chemical engineering concepts, with particular expertise in Biofuel, Water and Wastewater Treatments, etc. Able to explain difficult concepts with ease and the ability to engage students in learning. Use knowledge, facts and information at hand to solve problems.
- ✓ Managed interdisciplinary research projects Prioritized tasks to achieve deliverables for research projects and industry partner timelines, particularly for field trials
- ✓ Present patience when working with students of different abilities and backgrounds. Listen to students carefully, providing feedback, and giving praise and recognition.
- ✓ Deal with students in class and in my laboratory, with other faculty members, and with college or university administration with a smile and with helping attitude.
- ✓ Independent, initiator, innovative and leader to conceive and conduct original research
- ✓ Possess excellent technical writing skills for grant proposals, reports, papers, and other documents

Chairperson **2019-2019**
Department of Chemical Engineering, University of Wah, Pakistan

- ✓ Managed department. Fourteen (14) faculty members reported to me.
- ✓ Designed admission campaign and achieved the targets.

- ✓ Provided academic leadership and management of the school's day-to-day operations.
- ✓ Ensured all courses and programs offered comprise a strategic mix of offerings that are relevant to the needs of students and the community at large, and are consistent with the department's Strategic Plan.
- ✓ Communicated with industry to win projects for bachelor and masters students. Invited industry to get help from university labs.
- ✓ Lead on-going faculty development initiatives within the department.
- ✓ Developed, monitored, and supported budget activity for the respective program areas, as well as monitor and ensure the attainment of annual financial targets.
- ✓ Developed and maintained effective and engaging relationships with students, faculty, staff, and industry representatives, with a strong commitment to fostering a collegial and collaborative work environment.
- ✓ Excellent communication skills and ability to collaborate and work effectively with various stakeholders.
- ✓ A high degree of initiative, follow through, and attention to detail.
- ✓ Competent use of technology (Microsoft Office).

Assistant Professor **2017-2019**
Department of Chemical Engineering, University of Wah, Pakistan

Taught at chemical engineering classes at University of Wah. Having a strong commitment to the profession, through outstanding activities in the areas of research, teaching and service, I accepted the challenge.

- ✓ Taught undergraduate courses in the specialty area of Chemical Reaction Engineering (CRE), Simultaneous Heat and Mass Transfer (SHMT), Plant Design and Engineering Economics, Environmental Engineering. Instructed laboratory classes of CRE, Thermodynamics etc. Wrote safety protocols for every experiment of CRE lab and implemented. Supervised undergraduate Project Design Reports. Taught Advance Chemical Reaction Engineering and Environmental Engineering to Masters Classes. Advised graduate research students. Published research (environment, biomaterials and catalysis) results in professional journals.

- ✓ Prepared instructional material, ensure safe operations, upgraded laboratory equipment, hired and supervised student workers, purchasing laboratory inventory, and overall management of laboratory inventory and personnel. Implemented lab safety protocols for all chemical engineering labs.

- ✓ Development of externally funded research programs is in progress. Member departmental professional service committee. Chair, curriculum and course development committee.

- ✓ Supervised Masters Theses

Research Fellow (Environmental and Renewable Energy Projects) **2011-2016**
Department of Chemical Engineering, Ryerson University, Toronto, Canada

Integrated the principles of sciences and engineering to design the solutions that will improve the natural environment. Analyzed scientific data, did quality-control checks and corrected malfunctioning equipment. Monitored progress of environmental improvement programs and assessed risks. Prepared reviews, proposals, specifications, findings, etc., and updated environmental investigation reports. For example:

- ✓ Developed methods to convert agricultural waste to energy for minimizing global warming.
- ✓ Evaluated various lignin removal techniques and proposed a novel technique with more cellulose production efficiency.
- ✓ Investigated environmental and pre-fermentation processes in bioethanol production
- ✓ Trained undergrad students for research projects. Supervised a number of lab performances of chemical engineering students.

Teaching Assistant (TA) Positions **2010 to 2015**

Department of Chemical Engineering, Ryerson University, Toronto, Ontario, Canada

- ✓ Prepared assignments for professors, and graded homework. Instructed tutorials of Chemical Reaction Engineering. Conferred with the supervising instructor.
- ✓ Helped to conduct experiments for the courses of Physical Chemistry, Process Technology, Unit Operation II to students. At this job, I introduced each experiment to students, actively provided advice and assistance to students as they conduct experiments in the lab, evaluated students' performance by observing them while they carried out experiments, graded laboratory reports for all students enrolled in the section, updated the on-line grade book for the students enrolled and enforce all safety regulations. I maintained a clean and orderly laboratory environment which included working with technical staff/colleagues to make sure the laboratory space is ready for the next class.
- ✓ Helped supervising instructor for the course of 'Chemical Process Safety, Loss Prevention' as graduate teaching fellow (TA). At this work, I marked assignments and quiz, proctored midterm exams and the final exam, provided feedback and assistance to the course instructor as requested, consulted, and provided feedback and assistance to students in office hours.
- ✓ Instructed under graduate researchers, critique graduate interns and researchers
- ✓ Provided individual assistance with class projects during open office hours

Review Engineer Assistant **Jan 2010 to July 2010**

Streamlined Review Unit, Ministry of Environment and Climate Change, Ontario, Canada

- ✓ Ensured applications comply with environmental legislation as well as established ministry standards, guidelines other criteria and good environmental engineering practices
- ✓ Practiced Environmental Compliance, Industrial Hygiene and Safety, Occupational Health, Occupational Hygiene, Audit Management, Incident Management & Risk Assessment. Applied provincial environmental policies and regulations such as Ontario Water Resources Act, Environmental Protection Act, Environmental Assessment Act, Safe Drinking Water Act, Environmental Bill of Rights in investigations
- ✓ Reviewed 40 designs of air, noise, water and wastewater management systems, including preliminary and detailed designs (drawings, plans, profiles etc.)
- ✓ Managed multiple projects, prioritized on the basis of urgencies. Wrote reports, made PowerPoint presentation in monthly meetings
- ✓ Coached and trained EITs and volunteers.
- ✓ Commissioned a new lab.
- ✓ Overall management of laboratory inventory and personnel.

Project Manager, Researcher (Environmental Engineer) **2000-2006**

Power and Water Desalination Research Center, Abu Dhabi Water and Electricity Authority, UAE

Carried out case studies, investigations, failure analysis, materials evaluations and monitoring, collected samples of drinking water (ground water, surface water, and industrial wastewater), evaluated research data, interpreted trends, prepared recommendations and reports

- ✓ Managed 33 projects independently, from conceptualization, team selection, assignment of roles, plan, execution, team motivation, till completion of projects.
- ✓ Trained, young engineers and staff for sampling, conducting research and report writing

- ✓ Offered monthly lectures on selected topics to colleagues
- ✓ Presented in in-house, national and international conferences

Technical Manager **1999-2000**
Arabcoat Paints and Coatings, Abu Dhabi, UAE

- ✓ Furnished lab staff and machine operators with technical knowledge through lectures
- ✓ Managed team of seven project manager, production manager, supervisor QC, R & D
- ✓ Selected team, assigned duties, and tracked progress of projects.
- ✓ Managed project staff; provided expertise and strategic advice to my organization
- ✓ Implemented Lean, TPS and Kaizen philosophies to reduce wastage and hence, cost
- ✓ Motivated my team, arranged resources and increased production by 50%
- ✓ Prepared material safety data sheets (MSDS) for all product ranges

Project Manager **1991-1998**
Consolidated Industries, Sahiwal

- ✓ Planned, controlled and managed projects of sewerage pipelines
- ✓ Trained teams of technologists, operators and engineers for optimum use of materials
- ✓ Designed and implemented techniques to avoid soil contamination in pipe coatings

Research Chemist **1988-1990**
La porte Colour Services, Sydney, Australia (1989-1990)
Colorflo Dispersions (Pvt). Ltd., Sydney, Australia (1988-1989)

- ✓ Evaluated raw materials for quality and performance characteristics. Developed low-cost products (pigments pastes) within the Australian standards of light fastness, durability and corrosion resistance
- ✓ Established health and safety committee and prepared MSDS sheets for all products

Professional Development

Teaching related

- **Professional Development in Teaching Program, Level I** **2016**
  Accredited for teaching at Higher Educational Institutions by Staff and Educational Development Association in UK (SEDA-UK), Ryerson University, Toronto, Canada
- **Professional Development in Teaching Program, Level II** **2016**
  Accredited for teaching at Higher Educational Institutions by SEDA-UK, Ryerson University, Toronto, Canada
- **Instructional Skills Workshop (ISW)** **2016**
  Accredited for teaching at Higher Educational Institutions by SEDA-UK, Ryerson University, Toronto, Canada
- **Future Smart: Essential Professional Skills** **2016**
  Ryerson University, Toronto, ON, Canada
- **Academic and Professional Communication for New Researchers** **2015**
  Ryerson University, Toronto, Canada

- **Academic and Research Integrity** **2015**
  Ryerson University, Toronto, Canada
- **Mentoring - Undergraduate Students** **2015**
  Ryerson University, Toronto, Canada
- **Teaching Online-Basic Skills for TAs** **2015**
  Ryerson University, Toronto, Canada
- **Mental Health and Well-Being-Skills for Graduate Students** **2015**
  Ryerson University, Toronto, Canada
- **Orientation to Environmental Health and Safety at Ryerson** **2006**
  Center for Environmental Health & Safety Management, Ryerson University, Toronto, Canada
- **Occupational Health and Safety** **2006**
  Education Safety Association of Ontario, Ryerson University, Toronto, Ontario, canada
- **Workplace Hazardous Materials Information System** **2005**
  Ryerson University, Toronto, Canada

Other Professional

- **One day Training Course for Program Evaluators**
  National Technology Council, Islamabad **2023**
- **National Curriculum Review for Petroleum and Gas Engg Technology**
  (Member of Committee), National Technology Council, Islamabad **2022**
- **Personal Branding and Career choice for Engineer**
  Pakistan Engineering Council, Islamabad **2022**
- **Industrial Wastewater Treatment and Recycling Technologies**
  Pakistan Engineering Council, Islamabad **2022**
- **Chemical Management System**
  Pakistan Engineering Council, Islamabad **2022**
- **How to write a Technical Research paper**
  One day short Course, By Wah Engineering College, University of Wah **2021**
- **CFD and its Engineering Applications**
  One day short Course, By Wah Engineering College, University of Wah **2021**
- **Development of Technical Tean and Execution of a Project**
  One day short Course, By Wah Engineering College, University of Wah **2021**
- **Outcome Based Education Using Bloom's Taxonomy and Balanced Scorecard**
  Knowledge Development Series, By Wissen Group at University of Wah **2018**

- **PCSWMM (spatial decision support system for EPA SWMM)** **2010**
  Hands on workshop**,** By Computational Hydraulics Inc. at SRU-MOECC, Toronto, Canada
- **e-learning for renewable energy** **2010**
  Ministry of the Environment and Climate Change (MOECC), Ontario, Toronto, Canada
- **Engineering Matter** **2010**
  Ministry of the Environment and Climate Change (MOECC), Toronto, Canada
- **e-learning for renewable energy** **2010**
  Ministry of the Environment and Climate Change (MOECC), Ontario, Toronto, Canada
- **Professional Access and Integration Enhancement Program** **2010**

Environmental legislation and Regulations, Environmental Project Management, Presentation skills; Health and safety at projects
Joint program of: Toronto Region and Conservation Authority-Professional Engineers Ontario, Citizenship and Immigration Canada.

- **Engineering Connections Program** **2006**
  Canadian Business Culture, Engineering Codes, Standards, Project Management, Building Codes, Project Management;
  Joint program of: ACCES Employment- Professional Engineers Ontario -Humber Institute of Technology, Toronto, Canada
- **Certificate, Corrosion and Material Selection for Desalination Plants** **2004**
  Middle East Desalination Research Center, Oman
- **Certificates, API Training Courses** **2003**
  API 570, API574, ASME Section V, IX, B16.5, B31.3, held at Abu Dhabi UAE

Professional Affiliations

- Member of the Professional Engineers Ontario (PEO), Canada
- Member of the Oil and Color Chemists Association, Ontario, Canada
- Past Member of the Chemical Institute of Canada
- Past Member of the Canadian Society for Chemical Engineering
- Past Member of the Ontario Society of Professional Engineers

- Past Vice Chair, East Toronto Chapter-PEO
- Past Director, PEO-Licensure Assistance Program, PEO, Canada
- Past Chair, Education Outreach Committee, East Toronto Chapter, PEO, Canada
- Past Vice President Education, Grosvenor Toastmasters Club, Toronto, Canada
- Past Elected Member of the Ryerson University Senate, Toronto, Canada.
  Member of Priorities Committee for Ryerson University Senate.
- Past Member of Executive Board of NACE, UAE
  Past Secretory, NACE UAE
- Past Secretory ASNT UAE

Awards and Honors

- **Guest Speaker, Application of Research Methodologies in Effective Composition of a Research Paper,**
  30th December, 2022, Mechatronics Engineer Department, University of Wah, Wah **2022**
- **Session Chair, 5th Pak-Turk Conference on Emerging-Technologies in the field of Science and Engineering (ETSE-2022)**
  1st and 2nd December, University of Wah, Quaid Avenue, Wah, Pakistan, **2022**
- **Keynote Speaker, Sustainable Manufacturing: an Attuite and an Opportunity.**
  6th International Conference on Sustainability in Process Industry.
  Oct 19, 2022 - Oct 20, 2022, (SPI 2022) GIKI Institute and UET Peshawar **2022**
- **Session Chair, 6th International Conference on Sustainability in Process Industry.**
  Oct 19, 2022 - Oct 20, 2022, (SPI 2022) GIKI Institute and UET Peshawar **2022**
- **Session Chair, International Conference on Chemical Engineering ICCE, 2022**
  24th-25th March 2022 at ICE&T, PU Lahore and UET, Lahore **2022**

- Ryerson Graduate Awards (Received 2012, 2013, 2014)
- Fellow of the Institute of Surface Coatings Technology, U.K
- Fellow of the Pakistan Institute of Chemical Engineers

Office Work Skills

- ✓ Proficient in the use of Microsoft Office suite (e.g., Word, Excel, and Outlook) and various collaborative technologies (e.g., Google Docs, Dropbox, OneNote), etc.
- ✓ Proficient in the use of standard office equipment, i.e. computers and copiers.
- ✓ Excellent organizational skills, detail orientation, and accuracy. Strong analytical, decision making, problem-solving, and critical thinking skills Demonstrated leadership and management skills
- ✓ Worked in a fast-paced, sometimes high-pressured, environment without supervision and produce high-quality work to meet deadlines.

Supervision

Graduate Supervision

Student	Theses Titles
Aasia Farrukh	Removal of heavy metals from industrial wastewater through adsorption processes using dignified rice husk. [MS Chemical Engineering, University of Wah, 2019]
Asad Ali	Techno-Economic analysis of a thermal power plant using Aspen Plus for different blends of indigenous lower rank coal with rice husk [MS Chemical Engineering, University of Wah, 2019]
G Abbas	Biosorption Studies of Arsenic (As) removal from Industrial Wastewater by using Fixed and Fluidized Bed [MS Chemical Engineering, University of Wah, 2022]
Ayesha Masoom	Upgradation and recycling of spent engine oil after treatment [MS Chemical Engineering, University of Wah, 2022]
Fazeel Ahmed	Nano-Electrocatalysts for bio-oil upgradation to Biodiesel (biofuel) [Current PhD Scholar, Chemical Engineering, University of Wah]
Aasia Farrukh	Progress on the lignocellulosic biomass pyrolysis for biofuel production toward environmental sustainability [Current PhD Scholar, Chemical Engineering, University of Wah]

Undergraduate Supervision

Students	Projects
Muhammad Bilal, Abdul Rehman Farhan Rasheed, Usama Sohail	Production of 35,000 Tons/year of 1-Tetradecene from Palmitic acid [BS Chemical Engineering, University of Wah, 2022]
Arslan Ahmed, Waseem Abbas Mujahad Haris Usman Khan, Uzair Hafeez	Production of ammonia from coal gasification [BS Chemical Engineering, University of Wah, 2020]
Amna Amna, Mahad Zahid Umar Akhtar	Production of Bioethanol from biomass (Rice Husk) [BS Chemical Engineering, University of Wah, 2022]
Muhammad Hassan, Um-e-rubab, Muhammad Bilal, Ahmad Saifullah	Production of Acetaldehyde from Methylacetate [BS Chemical Engineering, University of Wah, 2021]
M.Aqib, Talha Ishaq, M.Zaid Latif, Hafiz Faisal Naveed	Production Of Cumene [BS Chemical Engineering, University of Wah, 2019]
Arsalan Ahmad, Waseem Abbas Mujahid, Haris Usman Khan, Uzair Hafeez	Production Of Ammonia From Coal Gasification [BS Chemical Engineering, University of Wah, 2019]

Co-Curricular and Extra Curricular Activities (2022+2023)

Date	Activity
May 31, 2023	**Nationwide Webinar** Organized a Nationwide Webinar to discuss decline in admissions in engineering profession in collaboration Pakistan Institute of Chemical Engineers.
Mar 16-17, 2023	**Convener** OBA based Re-accreditation visit by Pakistan Engineering Council, National Textile University Faisalabad, Karachi
Feb 27, 2023	**Certification for Chem Engg Undergrads** Certification organized in collaboration with PIChE and UN Climate Change Learning Program. Venue: Computer Lab, Chem Engg. University of Wah.

Nov 23-25, 2022	**National Curriculum Review Committee** Invited to take part in the meeting of National Curriculum Review Committee (NCRC) to finalize the preliminary draft.
Sept 28-30, 2022	**National Curriculum Review Committee** Invited by National Curriculum Review Committee to be in the team to perform the revision work.
Oct 19-20th, 2022	**Keynote Speaker** 6th International Conference on Sustainability in Process Industry (SPI 2022) Oct 19-20th, 2022 at GIKI. Collaboration between UET Peshawar an GIKI
Dec 1st -2nd, 2022	**Organizing Committee** 5th Pak-Turk International Conference on Emerging Technologies in the field of Sciences and Engineering.
Dec 1st -2nd, 2022	**Chair Technical committee** 5th Pak-Turk International Conference on Emerging Technologies in the field of Sciences and Engineering.
Dec 1st -2nd, 2022	**Session Chair** Technical Session 6 (Day 1)- Chemistry & Chemical Engineering, Venue: LR-04 5th Pak-Turk International Conference on Emerging Technologies in the field of Sciences and Engineering.

Publications

(Outstanding record of research accomplishments)
https://scholar.google.com/citations?user=F9swfq8AAAAJ&hl=en

Dissertation and thesis

1. **Baig, K. S.** 2016. Strategic adsorption/desorption of cellulases NS 50013 onto/from Avicel PH 101 and Protobind 1000. Doctoral dissertation. Doctor of Philosophy in Chemical Engineering. School of Graduate Studies. Ryerson University, Toronto, Canada.
   http://digital.library.ryerson.ca/islandora/object/RULA%3A5803/datastream/OBJ/download

2. **Baig, K. S**. 2008. Biosorption of Nickel and Zinc Ions on Wheat Straw. Masters thesis. Master of Applied Sciences in Chemical Engineering. School of Graduate Studies. Ryerson University, Toronto, Canada.
   https://digital.library.ryerson.ca/islandora/object/RULA%3A694.

Peer Reviewed Papers

3. Baig, K. S., Ahmad, F., Asghar, U., Khan, W. A. 2024. Biosorption studies on arsenic (III) removal from industrial wastewater by using fixed and fluidized bed operation. Mehran University Research Journal of Engineering and Technology, Vol. 43(1), p 154-164.
   Doi: http://dx.doi.org/10.22581/muet1982.2401.2938.
   Also available on, Astrophysics Data System of NASA
   https://ui.adsabs.harvard.edu/abs/2024MURJE..43..154B/abstract

4. Baig, K. S., Qureshi, K.S., Farrukh, A., Mahmood, N. 2022. Strategic lignin removal from lignocellulosic matrix of wheat straw using selectivity characteristics of ozone. Journal of the Pakistan Institute of Chemical Engineers. ISSN: 1813-4092. Vol. 50 (1), p 01-21.

5. Baig, K.S. 2022. Optimization of operational parameters for adsorption of cellulases onto microcrystalline cellulose using REML and RSM methodologies. Analytical and Bioanalytical Techniques Vol 13 (1), , p 440 DOI: 10.4172/2155-9872.1000439.

6. Baig, K. S. 2022. Kinetics of Lignin Removal from the Lignocellulosic Matrix after Ozone Transportation. Methane. Vol 1(3), P 177-188. ISSN 2674-0389. https://doi.org/10.3390/methane1030014

7. Yousaf, M., Mandiwana, K.L., **Baig, K.S*.,** Lu J. 2020. Evaluation of Acer rubrum Tree Bark as a Bioindicator of Atmospheric Heavy Metal Pollution in Toronto, Canada. Water Air Soil Pollut Vol. 231, p 382. https://doi.org/10.1007/s11270-020-04758-w. Also available on:
   https://link.springer.com/journal/11270/volumes-and-issues/231-8?page=2

   Also available on the web page of United **States Environmental Protection Agency** at:
   https://hero.epa.gov/hero/index.cfm/reference/details/reference_id/7024937

8. **Baig, K.S.*,** 2020. Interaction of enzymes with lignocellulosic materials: causes, mechanism and influencing factors. Bioresources and Bioprocessing (published under the brand Springer Open) Vol. 7 (21). https://doi.org/10.1186/s40643-020-00310-0

9. **Baig, K.S.*,** Turcotte, G., Doan, H. 2019. Future prospects of delignification pretreatments for the lignocellulosic materials to produce second generation bioethanol. International Journal of Energy Research. Vol. 43 (4), p 1411-1427. DOI: 10.1002/er.4292.
   Also available on, Astrophysics Data System of NASA
   https://ui.adsabs.harvard.edu/abs/2019IJER...43.1411B/abstract

10. **Baig, K, S*.,** Yousaf, M. 2017. Coal Fired Power Plants: Emission Problems and Controlling Techniques. Journal of Earth Science and Climatic Change Vol. 8 (7) 404. doi: 10.4172/2157-7617.1000404.

11. **Baig, K.S.*,** Turcotte, G., Doan, H. 2016. Adsorption and desorption of cellulases NS 50013 onto/from Avicel pH 101: A simple functional model. International Journal of Waste Resources Vol. 6(3). doi:10.4172/2252-5211.1000243.
    Also available on Walsh Medical Media at
    https://www.walshmedicalmedia.com/open-access/adsorption-and-desorption-of-cellulases-ns-50013-ontofrom-av

12. **Baig, K.S.*,** Turcotte, G., Doan, H. 2016. Adsorption of cellulase enzymes on lignocellulosic materials and influencing factors: a review. International Journal of Waste Resources Vol. 6(3). doi:10.4172/2252-5211.1000239
    Also available on, Walsh Medical Media, at
    https://www.walshmedicalmedia.com/open-access/adsorption-of-cellulose-enzymes-on-lignocellulosic-materials-andinfluencing-factors-a-review-2

13. **Baig, K.S.*,** Turcotte, G., Doan, H. 2016. Looking at adsorption of cellulases NS 50013 onto Avicel PH 101 and Protobind 1000 through isotherms and thermodynamics. International Journal of Waste Resources Vol. 6(2). 1000222. doi:10.4172/2252-5211.1000222. Corpus ID: 54845620
    Also available on, Walsh Medical Media, at
    https://www.walshmedicalmedia.com/open-access/looking-at-adsorption-of-cellulases-ns-50013-onto-avicel-ph-1

14. **Baig, K.S.*** 2016. Thermodynamics of adsorption/desorption of cellulases NS50013 on/from Avicel PH 101 and Protobind 1000. American Journal of Engineering Research Vol. 5(2), p 157-165.

15. **Baig, K.S**.*, Wu, J., Turcotte, G., Doan, H.2015. Novel ozonation technique to delignify wheat straw for biofuel production. Energy and Environment Journal, Vol. 26(3), 2015. https://agris.fao.org/agris-search/search.do?recordID=US201900141984. doi.org/10.1260/0958-305X.26.3.303
    Also available on 'JSTOR' at
    https://www.jstor.org/stable/90006010
    See also at, astrophysics data system of NASA
    https://ui.adsabs.harvard.edu/abs/2015EnEnv..26..303B/abstract

16. **Baig, K.S*.,** Doan, H.D., Wu, J. 2009. Multicomponent isotherms for biosorption of Ni^{+2} and Zn^{+2}. Desalination Vol. 2249 (1), p 429-439.
    Also available on ScienceDirect at
    https://www.sciencedirect.com/science/article/pii/S0011916409009527

Poster Presentations

17. **Baig, K.S.*,** Turcotte, G., Doan, H. 2016. A novel strategy for desorption of cellulases from delignified wheat straw for production of biofuel. Presented in 66th Canadian Chemical Engineering Conference (Sustainability and Prosperity) held in Quebec City, ON, Canada, on October 16-19, 2016.

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