

ORIC

NEWSLETTER



Capital University
of Science and Technology Islamabad

PAKISTAN
AERONAUTICAL
COMPLEX



Ideas Hunting Sessions on Innovation and Commercialization
Visit of high Level Delegation from Pakistan Navy to CUST
BIM CoE Workshop on Revit Architecture Fundamentals
Training Session on Communication and Presentation skills
Seminar on Cancer Drug Development from Natural Sources
BIM CoE Workshop on Revit Architecture Fundamentals

Participation of ORIC in HEC CPEC Conference
Visit of ORIC and CUST Faculty Team to PAC Kamra
Visit of high Level Delegation from Harbin Engineering University, China to CUST
Visit of ORIC and CUST Faculty Team to Animal House, NIH, Islamabad



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Capital University of Science & Technology

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Dean ORIC Message



Capital University of Science & Technology (CUST) Islamabad is a progressive academic institution determined to produce competent professionals, who could be instrumental in the development of a prosperous society. The core objective of ORIC at CUST is to provide strategic and operational support to the university research activities, strengthen academia-industry linkages and promote entrepreneurship, technology-transfer and commercialization activities. ORIC has the responsibility of guaranteeing that all research programs and policies reflect the core values of

academic freedom, professional integrity, ethical conduct and full compliance with all policies, legal requirements and operational standards of the university. We believe in continual capacity building of our students to satisfactorily equip them with modern tools and skills vital for the industry. A number of joint ventures are being done with industry through mutual collaborations. To showcase our recent progress report, the ORIC Newsletter Fall-2019 is in your hands. This Newsletter entails the contribution of ORIC towards its embattled domains i.e. Research Operations, Technology Incubation & Innovation and Industrial Liaison. It is comforting to see that ORIC is playing its leading role in facilitating university's research outcomes and Technology Incubation & Innovation activities. The Office of Research, Innovation and Commercialization has done great work in compiling this Newsletter of great value and is committed to unfold its prolific endeavor to the next level.

Prof. Dr. Aamer Iqbal Bhatti

HEC National Research Program for Universities (NRPU)

National Research Programme for Universities (NRPU) is a flagship Research Programme of HEC for funding research grants on competitive merit for high-level and promising scientific research projects that demonstrate strategic relevance and impact to local industry and society. The faculty researchers of Capital University of Science & Technology have submitted numerous proposals on diverse and innovative research projects and ideas under HEC National Research Program for Universities (NRPU). Office of Research, Innovation and Commercialization have copiously facilitated the researchers in their proposals submission and associated documentation and paperwork. The following table briefs the list of research proposals submitted by CUST faculty under NRPU Programme.

Sr #	Title	Principal Investigator (PI)	Department	Duration	Budget (PKR)
1	Robust Model Predictive Control of Super Maneuverable Fighter Aircraft	Prof. Aamer Iqbal Bhatti	Electrical Engineering	3 years	15.554 Million
2	Investigation of Fracture Properties of Human and Animal Bones and Establishing National Center of Excellence for 3-D Printability Fabrication of Prosthetic and Orthotics	Prof. Irfan Anjum Manarvi	Mechanical Engineering	3 years	20 Million
3	Anticipation of Abnormal Activities in Complex Urban Environments using Multi-Camera Information Fusion	Dr. Nadeem Anjum	Computer Science	3 years	12.60 Million
4	Citation Recommendation System: A Novel Approach to Identify Meaningful Citations	Prof. M. Tanvir Afzal	Software Engineering	3 years	19.23 Million
5	Molecular Epidemiology and Prevalence of Antibiotic Resistance Genes in Smog Particulate Matter: Implications for Human Exposure in Pakistan	Dr. Arshia Amin Butt	Biosciences	2 years	6.5 Million
6	A Hybrid Approach for Investigation of Morphology and Pharmacology of Iron and Zinc Oxide Nanoparticles utilizing Mentha asiatica added with External Modifiers	Dr. Erum Dilshad	Biosciences	2 years	4.2 Million
7	Pharmacological Screening of Selected Synthetic Benzimidazole Derivatives against Painful Diabetic Neuropathy in Animal Models	Dr. Muzaffar Abbas	Pharmacy	3 years	6.25 Million
8	Preparation of Indigenous Manual Based Intervention for Lowering anxiety and Depression Levels among Pakistani Youth	Dr. Sabahat Haqqani	Management Sciences	3 years	14.63 Million
9	Addressing missing links between Real Estate Suppliers, Consumers and Policy Makers: A Comparative state of Housing in Islamabad and Lahore	Dr Saira Ahmed	Management Sciences	2 Years	15.001 Million

Mualim: Entertainment Based Learning Tool (EBLT)

Going Global 2020 is an annual conference of more than 1,000 leaders from 80 countries to discuss issues facing the international education community. HEC and British Council will jointly fund selected number of delegates from Pakistan as speakers/contributors in sessions at the conference. The proposal entitled "Mualim: Entertainment Based Learning Tool (EBLT)" is submitted in collaboration with Mr. Shahzad Rafique (Assistant Professor, CS Department) for presentation in Going Global 2020 Conference. Mualim is an application



proposed for toddlers' education at home. The conference is scheduled on 29th – 30th June 2020, at QEII Centre, London.

Ideas Hunting Sessions on Innovation and Commercialization

Office of Research Innovation and Commercialization at Capital University of Science and Technology has the ambition to not only enhance research culture at the university but also to translate research results into practice to have a positive impact on our region's economy. In this regard brainstorming and ideas hunting sessions about innovation and commercialization were held with all academic departments to identify low risk, small investment

and marketable ideas and then work for their potential commercialization.

The first session was held with the faculty of Biosciences on 18th October 2019 in the ORIC office. Faculty members were briefed about ORIC and its aim to avail funding opportunities. Dean ORIC apprised that purpose of the meeting was to have an Ideas Hunting session with the faculty members to discuss and share ideas and to identify domains in the field of Biosciences that have commercialization potential. After comprehensive and deliberate discussion three major workable domains were identified and agreed upon by participants namely Genetic and Molecular Diagnostics, Tissue Culture and Microbial Enhanced Oil Recovery.



The second session was held with faculty of Pharmacy on 23rd October 2019. Dean Research & Innovation requested the faculty members to share low-risk, high-yield opportunities that can be addressed utilizing available lab facilities of the Department. After comprehensive and deliberate discussion some major directions were identified and decided to be worked on for their potential commercialization.

The brainstorming session with faculty of Civil Engineering (CE) was held on 06th November 2019. Dean Research & Innovation assured CE Department that ORIC will provide full assistance required in the commercialization of any type of product or idea shared by the respective department. A detailed discussion was carried on Building Information Modeling and Consultancy Services with regard to Civil and its Allied fields.



The Ideas Hunting session with Mechanical Engineering (ME) Department was held on 22nd November 2019. The purpose of meeting was to have an interactive meetup with the faculty members to discuss and share ideas and to identify domains in the field of Mechanical Engineering that have commercialization potential. The meeting attendees agreed upon some workable and revenue generation ideas like Cold Storage System, Faculty Training and Certifications and Commercial Testing.

The particular session with faculty of Mathematics was held on 28th November 2019. Dean Research & Innovation shared that in the modern era of technological advancement, Cyber security is a hot issue that can be looked to from mathematics point of view. Similarly, organizations are very much involved in new Encryption Schemes, Computational Fluid Dynamics (CFD) and Optimization. The faculty agreed that collaborative work can be started with

the particular organizations in these domains and was keen to collaborate with ORIC in its strive of industrial liaison.

A Commercialization Matrix consisting of commercializeable ideas having specific marketing and sales potential was created upon conclusion of the sessions. The last session was held with the Faculty of Management and Social Sciences on January 02, 2020. Dean Research & Innovation apprised that ORIC has conducted brainstorming sessions with all departments. The participants were asked to indicate the market potential and highlight way forward of the tabulated ideas. The faculty was also asked to submit their expertise in terms of providing trainings and skill consultancy so that their expertise can be utilized by conducting workshops and skills development session through the platform of ORIC.



Professorial Inaugural Lecture of Dr. Muhammad Tanvir Afzal

An Inaugural lecture is an occasion of significance in a faculty member's career. The activity allows a newly appointed professor an opportunity to share his research interests and celebrate an important personal milestone with a broad audience, including campus community, colleagues and the general members of the public. Office of Research, Innovation and Commercialization organized the Professorial Inaugural Lecture to honor Dr. Muhammad Tanvir Afzal, Prof. SE Department, CUST on Oct 02, 2019. The lecture was delivered on the topic entitled "Scientometrics: A Science for Measuring Scientific Output". A total of 38 faculty members from various departments attended the event. Dean ORIC acknowledged Dr. Tanvir Afzal for an enlightening and thought provoking talk. He also thanked faculty members for their keen interest and wished to arrange such type of events on continual basis.





Visit of high Level Delegation from Pakistan Navy to CUST

A high level delegation of Pakistan Navy led by Commodore Dr. Junaid Khan ACNS (NR&D) visited Capital University of Science & Technology, Islamabad on 22nd October 2019. The delegation members included Captain Dr. Muhammad Farhan, Director R&D and Captain Dr. Faisal Amir Khan, Director NCW (Tech), Pakistan Navy.

The faculty team from CUST was comprised of following members

Dr. Aamer Iqbal Bhatti	Dean ORIC/Professor, EE Department
Dr. Noor Muhammad Khan	HoD/Professor, EE Department
Dr. Fazal Ur Rahman	Professor, EE Department
Dr. Irfan Manarvi	Professor, ME Department
Dr. Muhammad Tanvir Afzal	Professor, SE Department
Dr. Muhammad Faisal	Associate Professor, EE Department
Dr. Khawar Naveed	Assistant Professor, ME Department



The formal session started with the presentation of Dean Research & Innovation about Capital University of Science and Technology, particularly about its students' strength, Research Groups, R &D Projects and Research Collaborations with academia and industry. The guests were pleased to know about the strong industrial backgrounds of CUST faculty members.

The officers took keen interest in Radar Based Projects and similar ventures that can be substantial for defense industry of Pakistan. Dr. Irfan Anjum Manarvi affirmed that we have adequate lab facilities, human capital and allied expertise to develop certain product. He added that we have an excellent infrastructure and labs facilities for Product Design and Development.

Both parties agreed to start collaboration through smaller projects and then move towards the greater endeavors. The Navy Officials invited CUST faculty members to visit Naval Headquarter and present their research expertise, success stories and areas of mutual interest to explore collaboration prospects.

BIM CoE Workshop on Revit Architecture Fundamentals

The BIM Center of Excellence (BIM CoE) at Department of Civil Engineering conducted a two-day training workshop on REVIT Architecture Fundamentals on 25th and 26th October, 2019. This training was specifically arranged for individuals who are either involved in research projects related to BIM or who want to pursue a career in BIM construction modeling.

A total of Sixteen participants with various academic and industrial background participated in the training. Dr. Shujaa Safdar, Assistant Professor, Civil Engineering Department was the resource person for the workshop. During the two days training, the participants were briefed about the fundamentals of BIM and received hands on training of Revit Architecture on a multi-story building model. The participants were also provided the certificates at the end of training.



Training Session on Communication and Presentation skills

An interactive session on Communication Skills focused on Verbal Skills, One on One & Public Speaking and Presentation Skills was organized by ORIC on 7th October 2019. The purpose of particular session was to train future engineers about Verbal and Non-Verbal Communication Skills. The workshop was intended to present the basic introductory material and most recent knowledge about Communication and its types, Presentation Skills, Communication Style and Interview tips with an activity and assignment.

The workshop resource person was Ms. Bismah Mirza who works as Manager Human Resource Development in TPL Corp. Ltd Karachi. The training session was followed by an informal meeting of Dean ORIC and Mr. Inam Elahi, Instructor (Communication Development Courses, CUST) with workshop trainer to deliberate over potential

schemes to improve communication and presentation skills of CUST students. Ms. Bismah was thanked and acknowledged with university memento by Dean ORIC and Mr. Inam Elahi at the end of the session.



ORIC Research Committee Meeting

Tenth ORIC Research Committee Meeting

The Tenth ORIC Research Committee meeting was held on October 22, 2019 and was chaired by Prof. Aamer Iqbal Bhatti, Dean Research & Innovation. Dean Research & Innovation presented the proposed ORIC Activities Calendar-Fall 2019 to the Committee members and asked for the recommendations. The recent progress of BIM Center of Excellence was also conversed in detail. Dean ORIC presented the filled HEC ORIC Score Card before the members. The list of proposals which have been submitted in various funding agencies was also discussed in brief. Dean Research & Innovation apprised the members about the CUST Research Policy being worked on by ORIC and asked for the recommendations of members.

Eleventh ORIC Research Committee Meeting

The Eleventh ORIC Research Committee meeting was held on December 24, 2019 and was chaired by Prof. Aamer Iqbal Bhatti, Dean Research & Innovation. The initial drafts of CUST Trainings and Incubation Center Policies were shared with the committee members. Dean Research & Innovation shared the Commercialization Matrix and details of the potential commercializeable ideas. He asked the respective members to help ORIC in working on the mentioned ideas and pursuing them towards commercialization. The task of evaluation of application forms for FYPs funding was also awarded to the committee members.





Participation of ORIC in HEC CPEC Conference

ORIC has actively participated in HEC CPEC Conference held on 18th November 2019. The objective of this conference was to review progress of academic collaborations among partner institutions, expand academic linkages among the universities of the two countries, promote civilizational harmony, explore joint research projects, plan joint conferences, seminars and workshops and strive for internationalization of higher education under CPEC.

Professorial Inaugural Lecture of Dr. Sajid Bashir

Office of Research, Innovation and Commercialization organized the Professorial Inaugural of Dr. Sajid Bashir, former Associate

Dean Corporate Linkages, CUST on November 25, 2019. The lecture was delivered on the topic entitled "The Art of Academic Writing".

The session started with the recitation of Holy Quran followed by a brief introduction of Dr. Sajid Bashir regarding his extraordinary academic and research achievements presented by Dean Research & Innovation. The talk enclosed the basic techniques, methods and tips to create an effective academic and research writing. The speaker also discussed the research paper write up process in an extremely interactive and simpler way.

The response of faculty members was quite promising. A total of 32 faculty members from various departments attended the event. Dean ORIC acknowledged Dr. Sajid Bashir for an enlightening and thought provoking talk.



Visit of ORIC and CUST Faculty Team to PAC Kamra

Office of Research Innovation and Commercialization has the ambition to brace the academic and industrial collaboration of the university. In this regard a visit in collaboration with Department of Mechanical Engineering was conducted to Pakistan Aeronautical Complex (PAC) Kamra on 27th November 2019. The faculty members from Departments of Mechanical Engineering, Electrical Engineering and Pharmacy were among the team visiting PAC. A brief presentation was delivered to CUST team by PAC personnel highlighting the capabilities, working domains and salient accomplishments of PAC Kamra. Dean Research & Innovation also conferred a presentation to PAC officials showcasing CUST research capabilities and collaboration potential. CUST team was also visited various factories including Aircraft Rebuilt Factory,

Aircraft Manufacturing Factory, Avionics Production Factory and Aviation Research, Indigenization & Development (AvRID). Both parties agreed to collaborate on the areas of mutual interest.



Seminar on Cancer Drug Development from Natural Sources

Office of Research Innovation and Commercialization (ORIC) in collaboration with Department of Biosciences conducted a seminar on “Cancer Drug Development from Natural Sources: The Neem Story” on 16th Dec, 2019. The guest speaker of the seminar was Dr. Aneel Paulus who is an Assistant Professor of Medicine and Cancer Biology at the Mayo Clinic in Florida, U.S. He is a translational oncologist and serves as the Director for Translational Research in B-Cell Cancers. Dr. Paulus and his team have expertise in the development of new drugs for cancer and conducting clinical trials in patients.



The seminar was followed by an interactive session with Dr. Aneel Paulus. Dean Research & Innovation, HoD Bioscience, HoD Pharmacy, faculty members and research students were present in the session. Dr. Paulus was briefed about the extensive research being conducted at CUST in Department of Biosciences and Department of Pharmacy. Dr. Paulus offered to work in collaboration in several domains including Bioinformatics, molecular biology, pharmacognosy and toxicity studies. Dean Research & Innovation and HoD Pharmacy Department presented University memento to the guest speaker and thanked him for his visit to Capital University of Science and Technology, Islamabad.

Collaborative Session with Project AZM Team from PAC Kamra

A team of project AZM headed by Group Captain Irtaza from Pakistan Aeronautical Complex (PAC) Kamra visited Capital University of Science and Technology (CUST), Islamabad on December 19, 2019. Project AZM aims to develop a fifth-generation fighter aircraft as per ASR requirements.

The project requires synergetic participation of a large number of organizations and stakeholder. Dean Research & Innovation and Dean FoE welcomed the guests. The purpose of the visit was to

devise a plan and identify areas of collaboration so that CUST can play a positive and key role in project AZM. Group Captain Irtaza showed his interest to work in collaboration with CUST in the areas of flight controls and Computer & Pattern Recognition. He acknowledged the expertise of CUST in these areas, both parties agreed to meet after two weeks to discuss the mode and terms of collaboration.



Auto Desk Revit Electrical Workshop

Capital University of Science and Technology hosted a 3 days “REVIT Electrical Workshop” on 02nd-04th January 2020. Office of Research, Innovation and Commercialization in collaboration with the Department of Electrical Engineering organized the particular workshop aiming to enlighten CUST future Electrical Engineers and students with the practical knowledge and applications of REVIT in Construction Industry and Building Electrification in particular.



Autodesk Revit is a 4D Building Information Modeling (BIM) software for architects, engineers, designers and contractors with tools to plan and track various stages in the building’s lifecycle, from concept to construction and later maintenance and/or demolition. A total of 30 participants including CUST undergraduate and postgraduate students from Electrical Engineering Department and Alumni attended the workshop. The resource person for the particular workshop was Mr. Shafaqat Iftikhar from Designmen Consulting Engineers, Islamabad. The participants were also provided certificates at the end of the workshop.



FYPs Funding/Business Plan Competition

Office of Research, Innovation and Commercialization has continued its initiative of Final Year Projects funding for Undergraduate students of Capital University of Science & Technology, Islamabad. The purpose of the activity is financial encouragement of students whose project ideas have particular business and marketing prospective. A total of six undergraduate projects were shortlisted for the funding encompassing 30,000 PKR

each. The event was advertised in November and the proposals for funding were received till 15th December 2019.

The evaluation/shortlisting of the applications was done in ORIC Research Committee Meeting held on 24th December 2019. The committee evaluated the applications in accordance with the practical feasibility, business plan and marketability of each project. After a systematic analysis by Research Committee, following students were shortlisted for the funding.

Sr. No.	Student Names	Project Title	Supervisor
1.	Muhammad Usman Ayaz Saleem Qureshi Muhammad Yamin Jan	Design and Fabrication of Shoe Testing Rig	Dr. Salman Sagheer Warsi
2.	Muhammad Hamza Haris Khan Muhammad Hamza Bhatti	Home Automation using Rasberry pi	Dr. Muhammad Shahid Iqbal
3.	Mamoon-ur-Rasheed Muhammad Sheryar Shahid Ali	Thermal Heat Storage Unit	Dr. Muhammad Mahabat Khan
4.	Shahbaz Tariq Faizan Butt Abdul Wasay	Solar PID Reversal Unit	Dr. Muhammad Ashraf
5.	Warda Imtiaz	Cafe 97	Dr. Ansir Ali Rajput
6.	Aiman Arshad Alina Sajjad Hamza Toor	Smart Living Solar Solutions	Dr. Sajid Bashir

Visit of high Level Delegation from Harbin Engineering University, China to CUST

A high level delegation from Harbin Engineering University (HEU), China led by Prof. Ding Xuezhong, visited Capital University of Science & Technology, Islamabad on 15th January 2020. The delegation included following members:

Dr. Ding Xuezhong	Vice Dean, International College
Dr. Qiao Gang	Vice Dean, College of Underwater Acoustic Engineering
Dr. Liu Sonzuo	Professor, College of Underwater Acoustic Engineering
Mr. Guo Feng	Vice Director, Alumni Affairs
Dr. Niaz Ahmed	Professor, College of Underwater Acoustic Engineering
Dr. Lou Yi	Lecturer, College of Underwater Acoustic Engineering



The meeting started with the brief introduction of CUST faculty team about their educational profiles and research expertise presented by Dean Faculty of Engineering, Prof. Imtiaz Ahmad Taj. This was followed by the corresponding introduction by visiting team from Harbin Engineering University about their academic and research backgrounds, presented by Vice Dean, International College (HEI), Prof. Ding Xuezhong.

Dean Research & Innovation, Prof. Aamer Iqbal Bhatti updated the officials about the research collaborations of CUST with academia and industry. The guests were amused to know about the research expertise and sound industrial background of CUST faculty members. The Chinese delegation lead presented a brief overview about HEI and research and development expertise of its faculty. He named few areas like Ship Building Technology, Underwater Acoustic and Nuclear Science Technology on which, HEI is investing heavily and have collaborations with leading Pakistani organizations.

The delegation also took keen interest and talked about workable Joint Research Lab/Center and wished to endure the research collaboration with CUST. The guests presented the HEI mementos to Dean ORIC and Dean Faculty of Engineering, CUST. The guests were also acknowledged with CUST mementos by Dean ORIC followed by a group photo.

CUST Research, Training and Incubation Policies

Office of Research, Innovation and Commercialization has constituted the CUST Research, Training, Incubation and Testing Policies. The final drafts of Research, Training and Incubation Policies have been shared with VC Office for principle approval. The Research policy provides guiding principles to establish a research environment within which academic staff and research scholars carry out their research work. It also provides an overarching framework for the development and implementation of all research management at CUST.

The Training policy defines the procedures that are to be used in conductance of technical trainings, workshops, short courses, seminars etc. for the benefit of university students and faculty, in a way that ensures the protection of interests of both university and its students/faculty. The objectives of CUST Incubation Center (CIC) Policy is to provide guiding principles to entrepreneurs through a supportive environment that helps them establish their business ideas and develop them into marketable products and develop and commercialize new ideas and technologies.

Visit of ORIC and CUST Faculty Team to Animal House, NIH, Islamabad

ORIC conducted a faculty visit to Animal House, National Institute of Health (NIH), Islamabad on 23rd January 2020. The faculty team was comprised of Dr. Muzaffar Abbas, HoD Pharmacy and Dr. Ansar Ali Rajput, Associate Professor, MS Department. The purpose of particular visit was to have a detailed overview of the Animal House in terms of food quality and cost, animal care and initial investment. The visit would prove to be a great source of guidance for the proposed Animal House at CUST.

Design of Faculty Research Group Posters

Office of Research, Innovation and commercialization designs the Research Group posters of CUST faculty members to depict their academic profile, key research areas and major expertise in a presentable way. These posters also provide information about group members and Postgraduate (MS/PhD) alumni of the particular group. Following are the Research Group Posters designed by ORIC in Fall-2019:

- Poster for Center of Research in Network & Telecom (CoReNeT)
- Poster for Cancer Cytogenetics Research Group
- Poster for Acme Center for Research in Wireless Communications (ARWiC)





Acme Center for Research in Wireless Communications (ARWiC)



GROUP INTRODUCTION

Acme Center for Research in Wireless Communications (ARWiC) at Capital University of Science and Technology, Islamabad is led by Prof. Dr. Noor Muhammad Khan and consists of thirteen researchers. The research interests of the group include Wireless and Cellular Mobile Communication Systems, Physical Channel Modeling, Fading Channel Characterization, Smart Antennas, MIMO Systems, Adaptive Signal Processing, Multiuser Detection, Energy Efficient Routing and Node Localization in Wireless Sensor Networks. The group has published more than 120 quality research papers in Journals and Conferences of international repute. The group has also maintained collaborative linkages in field of research and development with reputable international research groups.

GROUP HEAD

Prof. Dr. Noor Muhammad Khan

Prof. Dr. Noor Muhammad Khan accomplished his PhD in Electrical Engineering from School of Electrical Engineering and Telecommunications, University of New South Wales (UNSW), Sydney, Australia. His research interests include Smart-Antenna Systems, Wireless-Sensor Networks, Channel Characterization and Estimation, Mobile-to-Mobile Communication Systems and Physical Channel Modeling for Mobile Communications. He held several key positions in WorldCall Communications, National Institute of Science and Technical Education (NISTE) and Pakistan Telecommunication Company Limited (PTCL). He is assisted on key academic and research positions at UNSW, Australia, Ghulam Ishaq Khan (GIK) Institute of Engineering Sciences and Technology and Mohammad Ali Jinnah University, Islamabad. Dr. Noor has more than hundred Research Publications to his credit in well reputed International Journals and Conferences. He has served as the Chair of Technical Program Committee in the IEEE International Conference on Emerging Technologies (ICET2012 and ICET2017). He has also served as the member of Technical Program Committee in various IEEE conferences. He has supervised more than forty MS and PhD thesis. Dr. Noor has been honored with prestigious "Research Productivity Award" by the Pakistan Council for Science and Technology (PCST) for consecutive years in 2011 and 2012. Currently, he is working as Professor and Head of Electrical Engineering Department at Capital University of Science & Technology, Islamabad.



RESEARCH AREAS

- Wireless Communications & Wireless Sensor Networks
- Cellular Mobile Communication Systems
- Physical Channel Modeling & Fading Channel Characterization
- Smart Antennas
- Adaptive Signal Processing

GROUP MEMBERS

- Mr. Tauqeer Ahmed
- Mr. M. Saad Khan
- Mr. Mirza M. Yasin Masood
- Mr. Khuram Shehzad
- Mr. Laif Akhtar
- Mr. Rahat Saadia
- Mr. Tahir Iqbal
- Mr. Haris Farooq
- Mr. Waheed Farooq

SELECTED PHD ALUMNI

Dr. Tauqeer Ahmed

Thesis Title: Bandpass Sampling Methodology for Uniformly Spaced Multiband Energy-Sparse Spectrum
Year: 2019

Dr. Hassan Raza

Thesis Title: Processing Efficient Distributed Adaptive RLS Filtering for Computationally Constrained Platforms
Year: 2019

Dr. Muhammad Saad Khan

Thesis Title: A Low Complexity Signed-Response Based Secure and Energy Efficient Routing Protocol for Wireless Sensor Networks
Year: 2018

Dr. Muhammad Yaqoob

Thesis Title: Modeling of MIMO Radio Channels for Mobile-to-Mobile and Umbrella Cell Based Cellular Communication Systems
Year: 2017

Dr. Muhammad Riaz

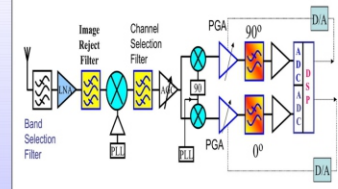
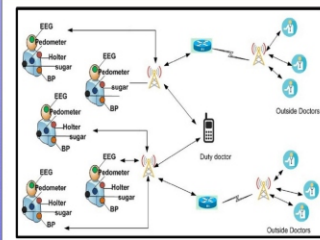
Thesis Title: Modeling and Characterization of Mobile to Mobile Communication Channels
Year: 2016

Dr. Ghaffar Ahmed

Thesis Title: Adaptive Power Control-based Energy-Efficient Routing (APCER) in Wireless Sensor Networks
Year: 2015

Dr. Syed Junaid Nawaz

Thesis Title: Modeling and Characterization of Cellular Mobile Channels for 3-D Radio Propagation Environments
Year: 2013



SELECTED PUBLICATIONS

Journal Publications

- M. Muzammil, T. Ahmad, N. M. Khan, and W. Lei, "Low cost, faster detection of cognitive radio through filter banks with bandpass sampling," *Physical Communication*, vol. 33, pp. 1-8, 2019.
- M. Raza, N. Aslam, H. L. Minh, S. Hussain, Y. Cao, and N. M. Khan, "A Critical Analysis of Research Potential, Challenges and Future Directives in Industrial Wireless Sensor Networks," *IEEE Communications Surveys & Tutorials (IEEE COMST)*, vol. 20, no. 1, pp. 39-95, 2018.
- M. M. Y. Masood, A. Jamal, and N. M. Khan, "Characterization of Spatial Reflection Coefficient for Ground-to-Aircraft and Satellite-to-Aircraft Communication," *Applied Computational Electromagnetics Society Journal (ACES)*, vol. 36, no. 1, pp. 56-68, 2018.
- M. Y. Wani, M. Riaz, and N. M. Khan, "Geometrical Modeling of Scattering Environment for Highways in Umbrella Cell Based MIMO Communication Systems," *Wireless Personal Communications*, vol. 101, no. 1, pp. 59-74, 2018.
- M. Y. Wani and N. M. Khan, "Characterization of 3D Elliptical Spatial Channel Model for MIMO Mobile-to-Mobile Communication Environment," *Wireless Personal Communications (Springer WPC)*, vol. 96, no. 4, pp. 6325-6344, 2017.
- H. Raza and N. M. Khan, "Low Complexity Linear Channel Estimation for MIMO Communication Systems," *Wireless Personal Communications (Springer WPC)*, vol. 97, no. 4, pp. 5033-5044, 2017.
- N. M. Khan and H. Raza, "Processing-Efficient Distributed Adaptive RLS Filtering for Computationally-Constrained Platforms," *Wireless Communications and Mobile Computing (WCMC)*, vol. 2017, Article ID 1248996, May 2017, 7 pages, 2017.

Conference Proceedings

- T. Ahmad and N. M. Khan, "A Simple and Low Cost Land-Mobile-Radio Design for Interoperability Among Radio Networks in a Public Safety Scenario," *International Conference on Communication Technologies (ComTech)*, pp. 1-4, 2019.
- F. Iqbal, M. Riaz, N. M. Khan, and M. Y. Wani, "Elliptical Channel Model Employing Propagation of Signals in 3D Space," *Proceedings of the IEEE International Conference on Emerging Technologies (IEEE ICET16)*, Islamabad, Pakistan, 2016.
- A. Ahmed, J. N. Syed, N. M. Khan, M. N. Patwary, and M. A. Maguid, "Angular Characterization of a Unified 3-D Scattering Model for Emerging Cellular Networks," *Proceedings of the IEEE International Conference on Communications (IEEE ICC19)*, pp. 2450-2456, London, UK, 2015.



Center of Research in Network & Telecom (CoReNeT)



GROUP INTRODUCTION

CoReNeT at Capital University of Science & Technology, Islamabad aims to foster the research and development activities in the rapidly growing field of networks and telecommunications. It initiates innovative ideas in networking and endeavors to contribute in the area of behind the scene technology, which is making today's information revolution possible. CoReNeT team is working on many R&D projects in collaboration with various organizations and was also able to obtain significant research funding which shows a confidence in expertise and dedication of the team.

GROUP LEAD

Dr. Amir Qayyum

Dr. Amir Qayyum is a self-motivated and ambitious, having both management and technical expertise with leadership skills to effectively lead a team; creative and visionary thought leader, have numerous publications with over 11,000 citations and is co-author of an RFC in IETF about mobile ad hoc networks. He is actively involved with professional organizations and is Chair IEEE Islamabad Section (2017 to date), Chair Professional Activities IEEE Islamabad Section (2014-2017), Chair IEEE Computer Society Islamabad Chapter (2009-2014), Secretary/Treasurer IEEE Islamabad Section (2011-2013), Founding member & Chair Board of Directors ISOC Islamabad Chapter (2014-2019), Member Non-Comm at ICANN (2015-2017), Founding Member Board of Directors Pak-France Alumni Networks (PFAN) (2009 to date), President PFAN (2011-2013) and Vice President PFAN (2014-2017). Dr. Amir Qayyum have 25+ years of R&D experience including more than 13 years of experience as a Project Director of many R&D projects. He is Founding Director of Center of Research in Networks and Telecom and supervised many MS and PhD research thesis. He has more than 20 years of teaching experience along with 16 years of academic management experience, including Dean Quality Enhancement Cell, Dean Faculty of Engineering, Head of Electronic Engineering Department and Chairman Computer Engineering Department. Dr. Amir Qayyum also possesses more than 7 years of industry experience including four years as Technical Team Lead in Networks and Data Communications, with expertise in Protocol Stack Development and System Design. For his outstanding contributions, he has been awarded the prestigious medal of "Chevalier dans l'Ordre des Palmes Académiques" by the Government of France.



RESEARCH AREAS

- Computer Networks: Wired, Wireless and Mobile
- IPv6 and Next Generation Networks (NGN)
- Internet of Things (IoT) and Sensor Networks
- Mobile Management in Heterogeneous Networks
- Mobile and Vehicular Ad Hoc Networks (MANETs / VANETs)
- QoS in Core and Access Networks for Multimedia Applications
- Software Defined Networks (SDNs) and Network Function Virtualization

EXTERNAL COLLABORATORS & GROUP MEMBERS

- Dr. Madsen Tofall (Citi Group, NJ, USA)
- Dr. Naveed Bin Razi (University of Ajman, UAE)
- Dr. Nauman Aslam (Northumbria University, UK)
- Dr. Muhammad Zeshan (University of Hyderabad, India)
- Dr. Isabelle Guerin Lassous (University of Lyon 1, France)
- Dr. Anis Louati (Institut Telecom Sud-Paris, France)
- MS and PhD Students

SELECTED MS/PHD ALUMNI

Dr. Shahneez Naz

Thesis Title: Resource Efficient Multi-dimensional Cache Management Strategies in Content-Centric Networks. Year: 2018

Dr. Sadaf Yasmin

Thesis Title: Cost-Effective Routing and Cooperative Framework for Opportunistic Networks. Year: 2016

Dr. Muhammad Asim Rasheed

Thesis Title: Adaptive Routing Update Approach for VANET using Local Neighbourhood Change Information. Year: 2014

Dr. Muhammad Yousef

Thesis Title: End-to-End Mobility Management Framework (EMF) for Multimed Mobile Devices. Year: 2013

Mr. Abdul Hanan

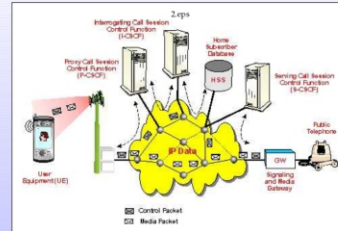
Thesis Title: IPv6 Tunneling Protocols: Mathematical and Testbed Setup Performance Analysis. Year: 2008

CURRENT MS/PHD STUDENTS

- Mr. Sharjeel Gilani
- Ms. Mukhtar Bano
- Mr. M. Umar Qureshi
- Mr. Saifullah
- Mr. Hamza Bin Waheed
- Mr. Hassan Mehmood
- Ms. Zahida Wilayat

SELECTED R&D PROJECTS

- 3GPP-IMS Compliant E2E Mobile IPTV Solution for 4G/LTE Networks focusing on IPTV development over IMS platform. *Funded by Ignite Technology Fund (2018-2019)*
- Framework for Control and Monitoring of Wireless Mesh Networks (WMN) using Software-Defined Networking (SDN). *Funded by HEC Pakistan and Govt of France under the FIC Periodic Program (2015-2018)*
- Design and Development of Hybrid IPv4 and IPv6 Network for QoS Enabled Video Streaming Multicast Application focusing on IPv6 and adaptive Video Streaming. *Funded by National ICT R&D Fund (2013-2014)*
- Vehicle based Road/Environment Condition Warning System using vehicular Ad hoc Networks (VANETs). *Funded by Govt. of France under the ICT Asia Program (2010-2013)*
- End to End Mobility Management Framework (EMF) for Multimed Mobile Devices, focusing on TCP Session Management. *Funded by National ICT R&D Fund (2008-2011)*
- EdScope: A New Learning System. *Funded by the Internet Society (ISOC), USA (2010)*
- Design and Implementation of Core Components of 4G Telecom Infrastructure focusing on IP Multimedia Subsystem (IMS). *Funded by National ICT R&D Fund (2007-2009)*




SELECTED PUBLICATIONS

Journal Publications


- T. Clausen, P. Jacquet, C. Adjih, A. Louati, P. Minet, P. Muhlethaler, A. Qayyum, and L. Viennot, "Optimized Link State Routing Protocol (OLSR), RFC 3626," *Internet Engineering Task Force (IETF)*, 2003 (6800+ citations)
- K. A. Khalil, O. Chughatai, A. Shahwan, A. Qayyum, and J. Pannek, "An Emergency Response System: Construction, Validation, and Experiments for Disaster Management in a Vehicular Environment," *Sensors*, vol. 19, no. 5, pp. 1-23, 2019.
- K. A. Khalil, O. Chughatai, A. Shahwan, A. Qayyum, and J. Pannek, "Road Accident Detection, Data Collection and Data Analysis Using V2X Communication and Edge/Cloud Computing," *Electronics*, vol. 8, no. 8, Article 896, 2019.
- S. Naz, R. N. B. Razi, P. A. Shah, S. Yasmin, A. Qayyum, S. Rho, and Y. Nam, "A dynamic caching strategy for CCN-based MANETs," *Computer Networks*, vol. 142, pp. 95-107, 2018.
- K. A. Khalil, S. M. Razi, O. Chughatai, A. Qayyum, and J. Pannek, "Experimental validation of an accident detection and management application in vehicular environment," *Computers & Electrical Engineering*, vol. 71, pp. 137-150, 2018.
- K. A. Khalil, A. Qayyum, and J. Pannek, "Performance Analysis of Proposed Congestion Avoiding Protocol for IEEE 802.11s," *International Journal of Advanced Computer Science and Applications (IJACSA)*, vol. 8, no. 2, pp. 356-369, 2017.
- S. Yasmin, R. N. B. Razi, and A. Qayyum, "Cooperation in Opportunistic Networks: An Overlay Approach for Destination-Dependent Utility-Based Schemes," *Arabian Journal for Science and Engineering*, vol. 42, no. 2, pp. 467-482, 2017.
- S. Yasmin, R. N. B. Razi, and A. Qayyum, "Resource Aware Routing in Heterogeneous Opportunistic Networks," *International Journal of Distributed Sensor Networks*, vol. 2016, pp. 1550-1529, 2016.

Conference Proceedings

- T. Saraj, M. Yousef, and A. Qayyum, "IIVIPTR: Resource Record for DNS," *Internet draft at IETF, draft-taraj-dnsop-iviptr-01*, 2018.
- K. A. Khalil, A. Qayyum, and J. Pannek, "Novel Routing Framework for VANET Considering Challenges for Safety Application in City Logistics, in Vehicular Ad-Hoc Networks for Smart Cities," *Advances in Intelligent Systems and Computing*, vol. 548, pp. 53-67, 2017.



Cancer Cytogenetics Research Group



GROUP INTRODUCTION

The Cancer Cytogenetics Research Group at Capital University of Science & Technology, Islamabad is headed by Dr. Shaikat Iqbal Malik, Professor, Biosciences Department. The Research Group is passionate to work on diverse research areas within the domains of Cancer Genetics, Mitochondrial Genetics, Thalassemia, Bladder Tumor, MDR on Typh, MDR on TB and Human Genetic Diseases.

GROUP HEAD

Prof. Dr. Shaikat Iqbal Malik

Prof. Dr. Shaikat Iqbal Malik is a highly reputed Bio Scientist. He has accomplished two Post Doctorates in Cancer Biology and DNA Repair & Cytogenetics from UNC Chapel Hill and USERRP NC, USA respectively. He received his PhD degree from National & Kapodistrian University of Athens. His key areas of research are Molecular Genetics, Cancer Cytogenetics, Comet Assay, Micro-arrays Gene Expression & Data Analysis etc. He has served in prestigious national and international institutes including Agriculture University of Athens, University of Qatar and National University of Science & Technology, Islamabad. Dr. Shaikat is a regular publisher in national and international journals and conferences of highest repute. He has worked on Research Project under National Research Program for Universities entitled "Genotoxicity Testing of Pesticides, Plant Protection Products by means of Premature Chromosome Condensation (PCC) in Peripheral Blood Lymphocytes" worth 4 Million PKR in 2007. He is recipient of numerous national and international trainings and certifications. He remained on key academic and managerial positions in his career. Currently he is serving as professor in the Department of Biosciences and as Director Volunteers in Service (VIS) at Capital University of Science and Technology, Islamabad.

Awards and Distinctions of Head

- Award of Short Course training Scholarship by Jann Lab Bar Harbor, USA in 2008-2009
- Best Faculty Performance Award from BUITEMS, Quetta in 2005-2006
- Award of SAARC Biotechnology Chair by Government of Pakistan in 2006
- Earned Scholarship for PhD from European Union DAC program via Greek Ministry of Education and Religious Affairs, Athens

RESEARCH AREAS

- Cancer Cytogenetics
- Comet Assay
- Micro-arrays Gene Expression & Data Analysis
- Human Genetic Diseases
- Drug Resistant Determination

GROUP MEMBERS

- Dr. Sahar Faraz
- Dr. Muhammad Tahir Khan
- Dr. Shahid Khan
- Ms. Hina Khan
- Ms. Faiza Rashid
- Ms. Maria Noureen

SELECTED MS/PHD ALUMNI

Ms. Sana Masood:
Thesis Title: In-silico Modeling of Hepatotoxic Drug used in Non Small Cells Lung Cancer (NSCLC) and new Drug Dosage Criteria Design
Year: 2019

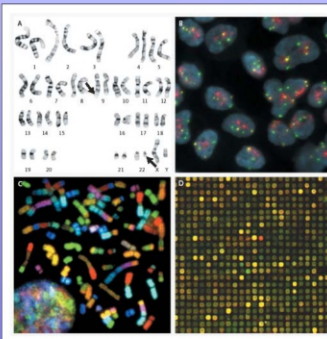
Ms. Sadia Aftab:
Thesis Title: Biological Evaluation and Comparison of Nigella Sativa (Kahaj) and Trachyspermum Ajwain (Ajwain)
Year: 2019

Ms. Sarwat Rabab Kamal:
Thesis Title: Relationship between ABO blood groups and Lipid Profile level in Adults Residents of Mirpur Azad Kashmir
Year: 2019

Ms. Zoya Khalid:
Thesis Title: A high throughput Computational (in-silico) Analysis of Claudin Gene Family in Human Ovarian Cancer
Year: 2018


Ms. Shreema Samra:
Thesis Title: In Silico Analysis of Papillary Thyroid Carcinoma Gene Mutation by the Evaluation of Gene Expression in Normal and Malignant Tissues
Year: 2018

Mr. Sajid Khan:
Thesis Title: Genetic Analysis of hereditary Polydactyly in Pakistani Families
Year: 2018




SELECTED JOURNAL PUBLICATION

- M. T. Khan and S. I. Malik, "Structural dynamics behind variants in pyrazinamide and pyrazinamide resistance," *Journal of Biomolecular Structure and Dynamics*, pp. 1-15, 2019.
- A. D. Kligerman, S. I. Malik, and J. A. Campbell, "Cytogenetic insights into DNA damage and repair of lesions induced by a monomethylated trivalent arsenical," *Mutation Research/Genetic Toxicology and Environmental Mutagenesis*, vol. 695, no. 1-2, pp. 2-8, 2009.
- M. N. Shadwan, S. Nisar, S. Alifidi, and S. I. Malik, "Amplification of Mitochondrial DNA for detection of Plasmodium vivax in Balaichistan," *J Pak Med Assoc*, vol. 57, no. 5, pp. 677-681, 2017.
- S. I. Malik, G. I. Terzoudi, and G. E. Panetias, "SCE analysis in G2 lymphocyte prematurely condensed chromosomes after exposure to arsenite: the non-dose-dependent increase in homologous recombination events does not support its genotoxic mode of action," *Cytogenet Genome Res*, vol. 104, no. 1-4, pp. 313-319, 2004.
- M. T. Khan, A. Khan, A. U. Rehman, Y. Wang, K. Akhtar, S. I. Malik, and D. Q. Wei, "Structural and free energy landscape of novel mutations in ribosomal protein s1 (rpl) associated with pyrazinamide resistance," *Scientific Reports*, vol. 9, no. 1, p. 7482, 2019.
- G. I. Terzoudi, S. I. Malik, G. E. Panetias, K. Manolis, and W. Makropoulos, "A new cytogenetic approach for the evaluation of mutagenic potential of chemicals that induce cell cycle arrest in the G2 phase," *Mutagenesis*, vol. 15, no. 6, pp. 339-343, 1998.
- M. T. Khan, A. C. Kavoulis, S. I. Malik, S. Ali, and D. Wei, "Artificial neural networks for prediction of tuberculosis disease," *Frontiers in Microbiology*, vol. 10, no. 1, p. 395, 2019.
- M. Junaid, M. T. Khan, S. I. Malik, and D. Q. Wei, "Insights into the Mechanisms of the Pyrazinamide-Resistance of Three Pyrazinamide Mutants N10R, P90T, and C128N," *Journal of Chemical Information and Modeling*, vol. 59, no. 1, pp. 488-508, 2019.
- A. U. Rehman, M. T. Khan, H. Liu, A. Wadood, S. I. Malik, and H. F. Chen, "Exploring the Pyrazinamide Drug Resistance Mechanism of Clinical Mutants T37P and W400G in Ribosomal Protein S1 of Mycobacterium tuberculosis," *J Chem Inf Model*, vol. 59, no. 4, pp. 1584-1597, 2019.
- A. Munir, S. I. Malik, and K. A. Malik, "De novo ligand design against mutated huntingtin gene by ligand based pharmacophore modelling approach," *Current Computer Aided Drug Design*, vol. 15, pp. 1-10, 2018.



Structural Material Research Group (SMaRG)



GROUP INTRODUCTION

The main objective of Structural Material Research Group (SMaRG) is to have an advanced research with focus on bridging gap between material properties and structure performance. This will help practicing engineers to recommend modern materials in construction industry. The scope of research ranges from properties of fibers as construction materials to structure performance including their economical aspects. The group is actively working on predicting the structure behavior keeping in mind the material properties of composites.

GROUP HEAD

Engr. Prof. Dr. Majid Ali

Engr. Prof. Dr. Majid Ali received his PhD in Science-Resistant Housing (Natural Fibre Concrete) from University of Auckland, New Zealand in 2015. He did his bachelors with Gold Medal and Masters with first position in structure specialization from UET Taxila, Pakistan. He has over 16 years of vast teaching, research and professional experience. He is an active international level researcher in structural materials. Prof. Majid is a regular publisher in national and international journals and conferences of highest repute. He has around 100 publications including 25 ISI/IF papers with Cumulative ISI Impact Factor over 100. He is an HEC Approved PhD Supervisor. Before joining academia, he had remained on keynote positions in industry, notably NESPAK (one of the leading consultants of Pakistan). He is recipient of numerous awards and distinctions. Prof. Majid is an active member of various professional bodies which include his lifetime membership of PEC as Professional Engineer. He is among the founding members of Civil Engineering Department at Capital University of Science and Technology (CUST), Islamabad and currently serving as Professor and as Governor University Health, Safety & Security Committee at CUST.

RESEARCH AREAS

- Properties of Fibres for Civil Engineering Applications
- Material Properties of Fibre Reinforced Composites
- Multiple Fibre Reinforced Composites for Structural Elements
- Performance of Composites in Structures
- Economic Aspects of Composites to be used in Structures Novel Materials

CURRENT MS/PHD STUDENTS

- Engr. Aaron Joshua Das (PhD)
- Engr. Ali Rehman (PhD)
- Engr. Safoor Ullah (PhD)
- Engr. Mehran Khan (PhD DUT China, Co-Supervision)
- Engr. Shahid Aftab (MS)
- Engr. Junaid Farooq (MS)
- Engr. Hamad Badar (MS)
- Engr. Khuram Shalwan (MS)
- Engr. M. Sajid Aslam (MS)
- Engr. M. Sarfaraz Junaid (MS)
- Engr. M. Ishaq (MS)
- Engr. M. Awan (MS)

NOTABLE MS/PHD ALUMNI

Engr. M. Usman Farooq:
PhD Thesis Title: Potential utilization of Wheat Straw in Concrete for Pavement Applications from Engineering Perspective
Year: 2020

Mr. Pargan Qamar:
PhD Thesis Title: Utilization of Natural Fibrous Polyester for out-of-plane Lateral Resistance of Masonry Walling
Year: 2020


Mr. Shokryar Ahmad:
MS Thesis Title: Impact Resistance of Concrete Wall having Jute Fibers and GFRP Rebars
Year: 2020

Mr. Fayaz Khan:
MS Thesis Title: Dynamic Behavior of Prototype Interlocking Plastic-block Structure Using Locally Developed Low-cost Shale Table
Year: 2019

Mr. Tasadduq Hussain:
MS Thesis Title: Reduction of Reinforcement Using Jute Fiber Reinforced Concrete in Slabs under Impact Loading
Year: 2018

Mr. Anas Za:
MS Thesis Title: Experimental Properties Evaluation of Fiber Reinforced Concrete related to Canal lining
Year: 2017

Mr. Mehran Khan:
MS Thesis Title: Seismic Performance of Unreinforced and Reinforced Brick Masonry Structures by Numerical Modeling for Design Optimization
Year: 2017



GROUP MEMBERS

- Engr. Prof. Dr. Majid Ali
- Engr. Dr. M. Usman Farooq
- Engr. Faiza Khalid
- Engr. Sana Gul
- Engr. Aaron Joshua Das
- Engr. Ali Rehman
- Engr. Safoor Ullah

SELECTED PUBLICATIONS

Journal Publications

- S. Ahmed, and M. Ali, "Use of agriculture waste as short discrete fibers and glass-fiber reinforced polymer rebar in concrete walls for enhancing impact resistance," *Journal of Cleaner Production*, vol. May, p. 122231, 2020, (I.F. 7.246).
- M. Khan, M. Cho, and M. Ali, "Cracking behaviour and constitutive modelling of hybrid fiber reinforced concrete," *Journal of Building Engineering*, vol. 30, p. 101272, 2020, (I.F. 3.279).
- M. Khan, A. Rehman, and M. Ali, "Efficiency of silica-fume content in plain and natural fiber reinforced concrete for concrete road," *Construction and Building Materials*, vol. 244, p. 118582, 2020, (I.F. 4.419).
- F. Qamar, T. Thomas, and M. Ali, "Improvement in lateral resistance of mortar-free interlocking wall with plaster having natural fibres," *Construction and Building Materials*, vol. 254, p. 117547, 2019, (I.F. 4.419).
- M. U. Farooq and M. Ali, "Effect of pre-treatment and content of wheat straw on energy absorption capability of concrete," *Construction and Building Materials*, vol. 224, pp. 472-583, 2019, (I.F. 4.419).
- F. Qamar, T. Thomas, and M. Ali, "Assessment of mechanical properties of fibrous mortar and interlocking soil stabilized block (SSB) for low-cost masonry housing," *Materials de Construction*, vol. 69, no. 336, p. 201, 2019, (I.F. 1.656).
- T. Hussain and M. Ali, "Improving the impact resistance and dynamic properties of jute fiber reinforced concrete for rebar design by considering tension area of FRP," *Construction and Building Materials*, vol. 215, pp. 892-907, 2019, (I.F. 4.419).
- M. U. Farooq and M. Ali, "Contribution of plant fibers in improving the behavior and capacity of reinforced concrete for structural applications," *Construction and Building Materials*, vol. 182, pp. 94-107, 2018, (I.F. 4.419).

Conference Publications

- M. Sudhan and M. Ali, "Behavior of interlocking plastic block wall with opening under harmonic loading using locally developed shale tables," in 11th International Civil Engineering Conference (ICCCE-2020) Integrating Innovation and Sustainability in Civil Engineering, NED-UT / IEP Karachi, Pakistan, vol. 11, 2020.
- M. U. Farooq and M. Ali, "Construction practices for first ever wheat straw reinforced concrete pavement for light traffic," 5th International Conference on Sustainable Construction Materials and Technology, Kingston University, London, UK, July 14-17, Paper ID SCMTS368, 2019.
- M. Ali, "Awareness of preparedness in institutional buildings of developing countries for a disaster," *Annual Australian Earthquake Engineering Society Conference*, Perth, Australia, November 36-18, Paper 14, 2018.
- M. Ali, "Evacuation of institutional buildings during a disaster in developing countries: from planning to implementation," *Annual New Zealand Society for Earthquake Engineering Conference*, New Zealand, April 27-29, Paper 0220, 2017.

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