PROF. DR.-Ing. SYED ABID ALI SHAH Ph.D., P. Eng.,

3-Postdocs (JSPS Fellow, MIF Fellow, Alexander V. Humboldt Fellow)

Assessment and Health Monitoring Specialist/Consultant of Large Scale Reinforced/Pres-stressed Concrete On-shore/Off-shore Infrastructures (President Gold Medalist)

(REGISTERED PROFESSIONAL CIVIL ENGINEER 14171/Civil)

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1. EARNED DEGREES

Degree	Year	University	Field
Postdoc-3	2013	University of Siegen, Germany	Structural Mechanics
Postdoc-2	2009	Tokyo Institute of Technology (Tokyo Tech), Japan	Structural Mechanics
Postdoc-1	2007	Tokyo Tech-University of Tokyo, Japan	Structural Engineering
Ph.D.	2004	University of Leipzig, Germany	Structural Engineering
M.S.	2000	National University of Sciences and Technology (NUST), Islamabad, Pakistan	Structural Engineering
M.B.A.	1998	Preston University Peshawar, Pakistan	Project Management
B.S.	1996	N.W.F.P. University of Engineering and Technology, Peshawar, Pakistan	Civil Engineering

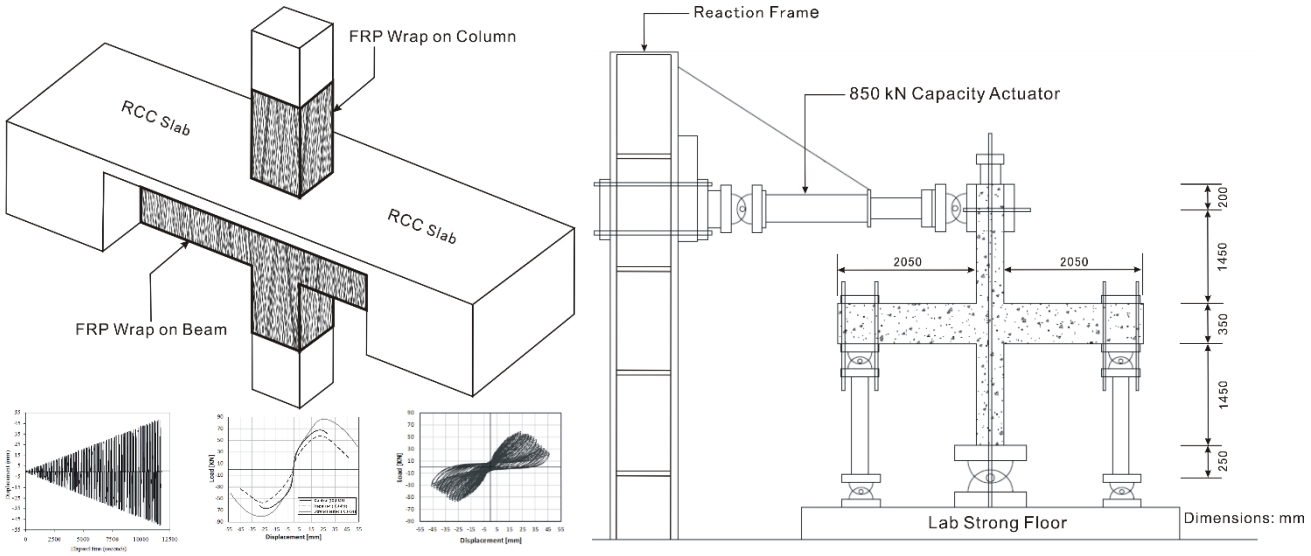
2. EMPLOYMENT HISTORY

Title	Organization	Years
Full Professor	International Islamic University Islamabad (IIUI), Pakistan	2020-Present
Vice-Chancellor	University of Science and Technology Bannu KPK, Pakistan	2017-2020
Chairman and Full Professor	International Islamic University Islamabad (IIUI), Pakistan	2016-2017
Chairman and Full Professor	Sarhad University of Science and Information Technology (SUIT) Peshawar, Pakistan	2013-2016
Alexander von Humboldt Distinguished Fellow & Professor	University of Siegen, Germany	2011-2013
Associate Professor	King Saud University, Riyadh, Saudi Arabia	2009-2011
JSPS Postdoctoral Research Fellow	Tokyo Institute of Technology (Tokyo Tech), Japan	2007-2009
MIF Postdoctoral Research Fellow	Tokyo Tech-University of Tokyo, Japan	2006-2007
Senior Lecturer	University of Botswana, Gaborone (Southern Africa)	2005-2006
Research Engineer	Materials Testing and Research (MFPA) Laboratories, Germany	2004-2005
Lecturer	N.W.F.P. University of Engineering and Technology, Pakistan	2000-2001
Assistant Director	National Highways Authority, Pakistan	1996-1998

3. PROJECTS HISTORY

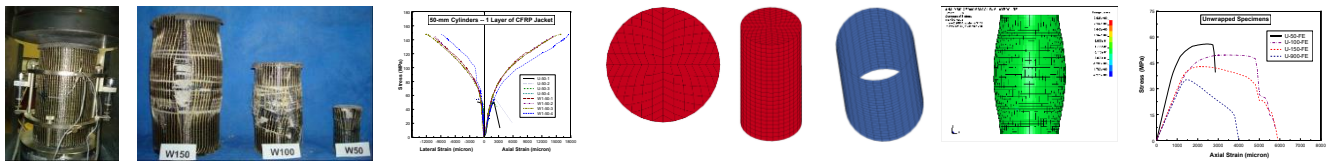
a. Repair of heat-damaged Reinforced Concrete Structures using Fiber Reinforced Polymer sheets

Upgrading of design standards, deterioration of the infrastructure coupled with the damage caused by natural disasters, and increased safety requirements, necessitate the need for developing new and effective construction materials for repair and strengthening of existing structures. Strengthening of concrete members subjected to accidental fire in buildings is usually accomplished by epoxy bonding of steel plates to the tension faces of the members or by construction of external reinforced concrete jackets. A relatively new technique involves replacement of steel plates or concrete jackets by fiber-reinforced polymer composites (FRP). Composite materials offer the engineer an outstanding combination of properties, such as high strength to weight ratio, high toughness, excellent durability, and is more cost effective to use than conventional materials. Within the last decade, the use of fiber reinforced polymers (FRP) for repairing and strengthening of structures has become more common due to increased knowledge and confidence in their applications. This study aims at investigating the flexural capacity of heat damaged reinforced concrete wide-shallow beam structures repaired using fiber reinforced polymer composites.



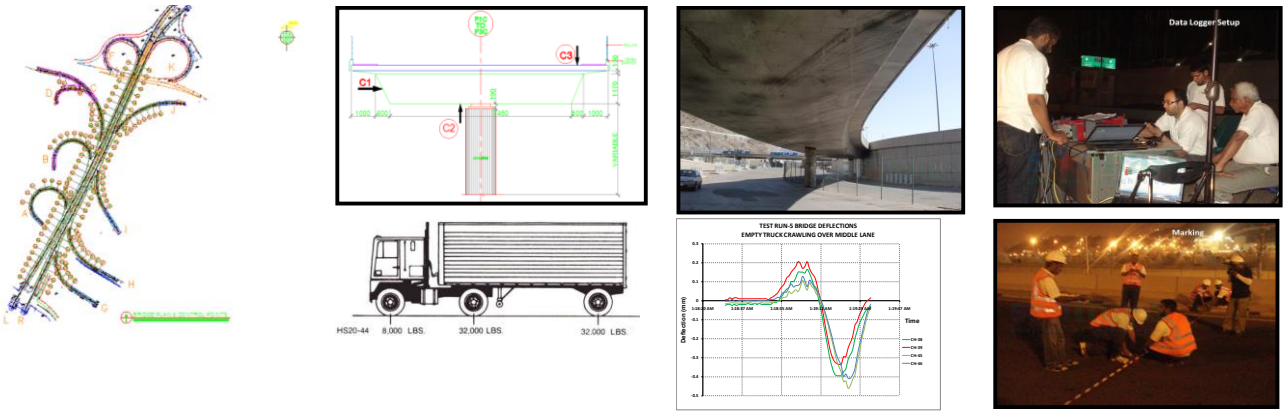
b. Size effects in FRP-wrapped concrete structural columns

Some FRP confinement models available in the literature are based on standard cylindrical specimens and others are based on mixed sizes of cylindrical specimens. The accuracy of the latter models is questionable, as it depends on the percentage of increase in strength between unconfined and FRP-confined specimens and on the ratio of strength increase among the different sizes of specimens. The question which can be raised here is: is there a need to introduce a size factor for the test results which are based on non-standard sizes of cylindrical specimens before using them in developing analytical models for FRP-confined concrete? The output of this study answers this important question. Thirty-seven concrete cylinders with three different sizes were experimentally tested. Of these, thirteen specimens were unwrapped to be used as baseline for comparison, whereas the remaining twenty-four cylinders were wrapped with layers of CFRP jacket. Studied parameters were specimen size and confinement stress ratio. In addition to the experimental investigation, non-linear finite element analysis was also carried out using LS-DYNA software. The predictions of the numerical finite element models were found to agree well with the experimental results. Based on this validation, the effect of specimen size on FRP-confined concrete cylinders was further investigated numerically taking into consideration various confinement ratios and cylinder sizes. The results show that the effect of specimen size on FRP-confined concrete is insignificant.



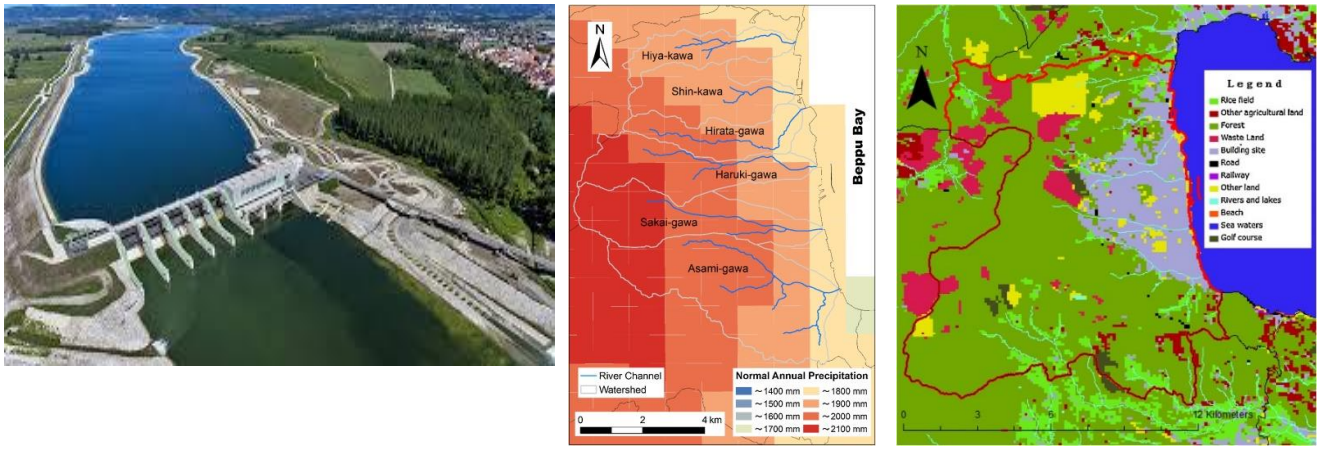
c. Health Monitoring of King Khalid Bridge at Mina, Makkah, Kingdom of Saudi Arabia

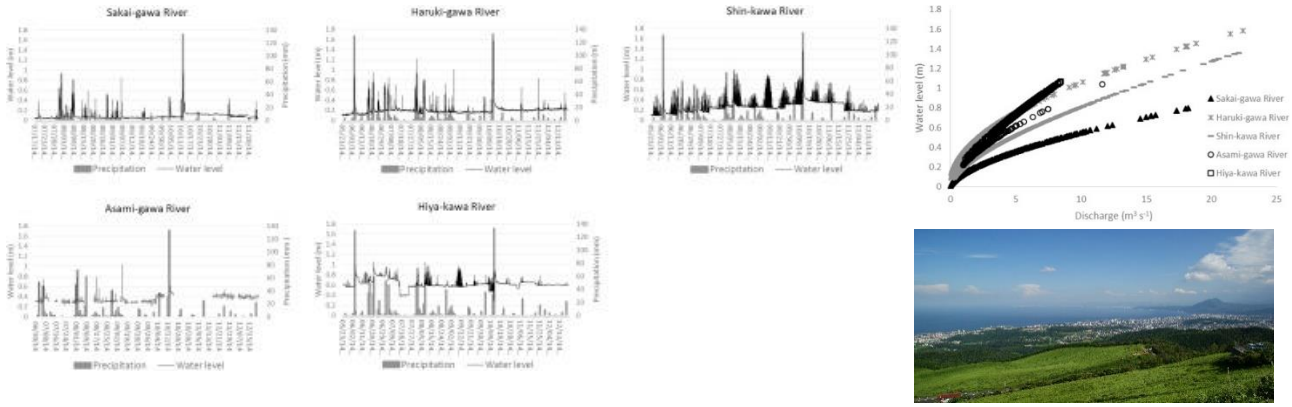
The King Khaled Pre-stressed concrete multi-span box-girder Bridge performance was monitored and investigated during a live load test. The test was carried out in accordance with the guidelines in the American Association of State Highway Transportation Officials (AASHTO) “Guide Manual for condition evaluation and load and resistance factor rating (LRFR) of highway bridges,” June 2003. For the purpose of this test, the consultancy unit, CEOSPS (Consulting Engineering Office for Safety and Preservation of Structures) of King Saud University, and Starmass Environment Technologies Corporation, were responsible for the installation of sensors as well as the data acquisition. The instrumentation plan comprised of two types of measurements. Deflections and concrete strains were to be measured at specified locations. At this stage only two continuous spans of the bridge were identified to be tested under the standard HL-93 vehicular live load model of AASHTO-LRFD.



d. Evaluation of potentials for hydropower development in Japan

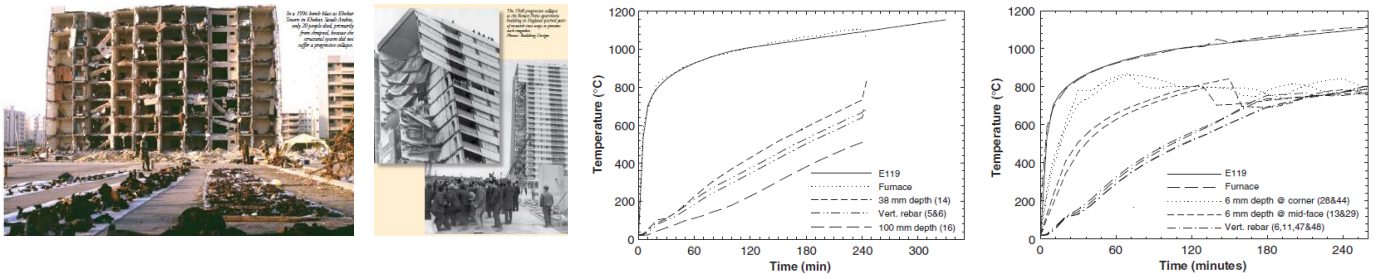
Reduction of man-made greenhouse gas emissions to the atmosphere is necessary to mitigate global warming and ocean acidification. As the energy transformation sector is one of the largest CO_2-emitting industrial sectors, and CO_2 is the most influential anthropogenic greenhouse gas, shifts from thermal power generation using coal, oil, and natural gas to less CO_2-emitting power generation are socially required. In this project quantitative guidelines were provided necessary for capacity building among various stakeholders to minimize water-energy conflicts in developing mini/micro hydropower (MHP), a baseload renewable energy that is socially necessary, not only to reduce greenhouse gas emissions but also to vitalize local economies by creating jobs related to MHP operations. Using three different methods to calculate river water levels and discharges, the potential power generation by MHP was estimated for six rivers in Beppu City. The results show that installation of MHP facilities can provide stable electricity for tens to hundreds of residents in local communities along the rivers. However, the results are based on the existing infrastructure, such as roads and electric lines. This means that greater potential is expected if additional infrastructures are built to develop further MHP facilities. On the other hand, in Japan, river laws and irrigation right regulations currently restrict new entry by actors to rivers. Therefore, to further develop MHP, deregulation of the existing laws relevant to rivers and further incentives for business owners of MHP facilities, along with the current feed-in tariffs, are required. Meanwhile, possible influences to riverine ecosystems when installing new MHP facilities should also be taken into account.





e. Development of design strategies for precast large scale protective structures against blast and impact loadings

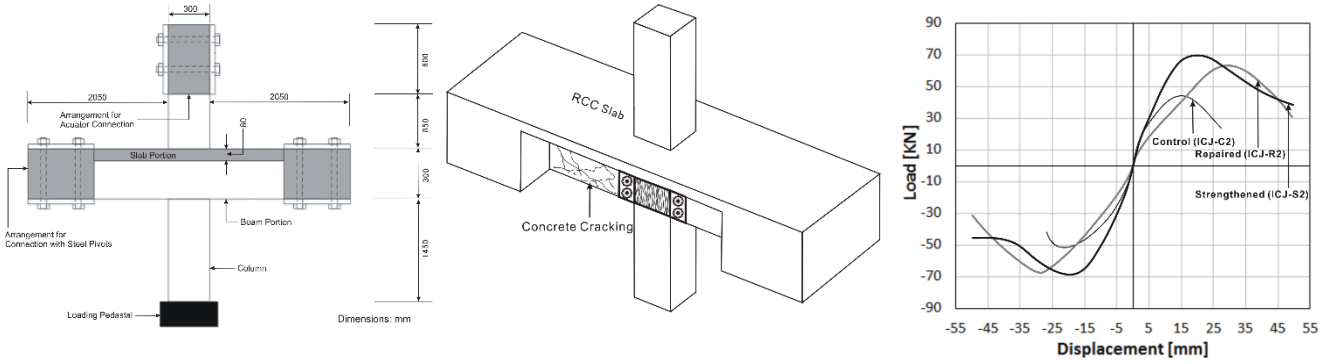
Existing and new buildings around the world are vulnerable to collapse when exposed to major impact or explosions as the design codes do not adequately cover progressive collapse. Several structures have collapsed in this fashion such as the Ronan Point in UK (1968), Hotel New World in Singapore (1986), Murrah building in Oklahoma (1995) and the World Trade Centre (2001). Recent developments in the efficient use of high strength building materials, innovative framing systems, longer floor spans, and refinements in analysis techniques have resulted in building structures with a considerably smaller margin of safety and more vulnerable to progressive collapse. Design codes need to be revised to address this problem. Although some research work has been done on the progressive collapse mechanism of cast-in-situ buildings as a result of blast generated loads, little or no research has been performed to assess the vulnerability of precast buildings to progressive collapse. Advanced simulation tools incorporating finite element software's for progressive collapse analysis of precast structures also have to be developed. In this project an efficient assessment method and an advanced numerical procedure to assess the likelihood of progressive collapse of precast concrete structures was developed. This project resulted into a better understanding of the progressive collapse phenomena in precast concrete structures as well as design guidelines and mitigation strategies for progressive collapse prevention.



f. High performance high strength reinforced concrete flat plates under gravity and lateral loadings

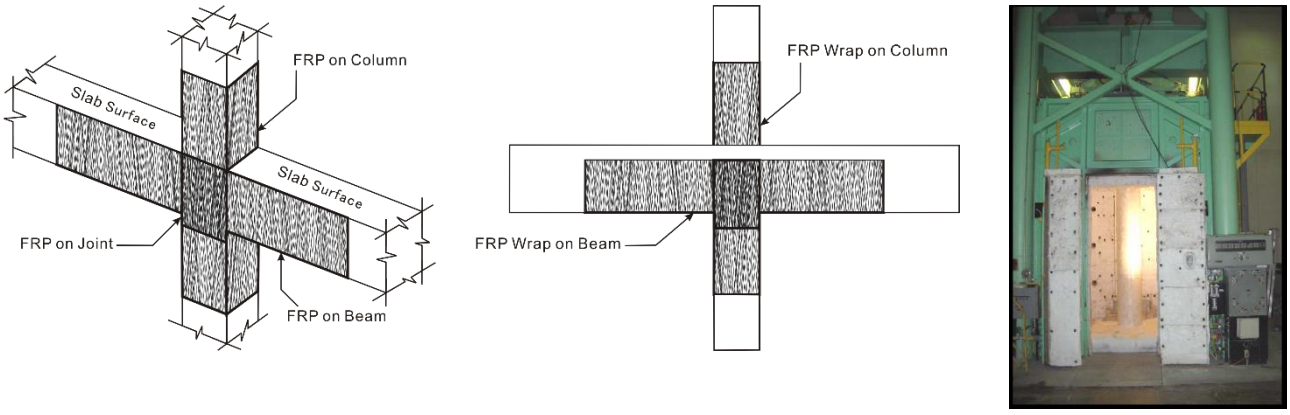
The use of High strength concrete (HSC) for structural components, is becoming exceedingly common in the world. However current design provisions of most of the major codes throughout the world are based on empirical relationships developed based on testing normal strength concrete. This project attempt to study the performance of high strength concrete flat plate slabs supported by wall like rectangular columns under both the gravity and lateral loading. Flat plate slab system does not have beams, column capitals, or drop panels, which make them both attractive and cost-effective at the same time. Moreover, the elimination of beams reduces the overall height of the floor in a multi-storey building thereby creating additional floor space. Another advantage of a flat plate slab system is the flexibility in partition location. As a result of these desirable features, the use of this slab system has become common to the German, Japanese and Saudi Arabian structures like multi-storey buildings, car parks, etc. However, this type of slab system also has some disadvantages. The slab-column connection in a flat slab exhibits higher stress and is most likely to fail due to a sudden and brittle punching failure. Such a failure generally occurs due to transfer of vertical shearing force and unbalanced bending moment between the slab and the column. The vertical shearing force is mainly caused as a result of gravity loads, while the unbalanced bending moment is a result of non-uniform gravity loads or any lateral loads due to wind or earthquake forces. As a result of this load concentration and the unbalanced moments, the punching shear failure of the slab occurs at a load well below the flexural capacity of the slab thereby resulting in concrete crushing along the periphery of the columns, before the

steel reinforcement reaches the yield strain. Errors in predicting the punching shear capacity have been known to cause catastrophic failures resulting in huge loss of life and property.



f. Fire insulation for concrete structures using fiber reinforced polymers (FRP)

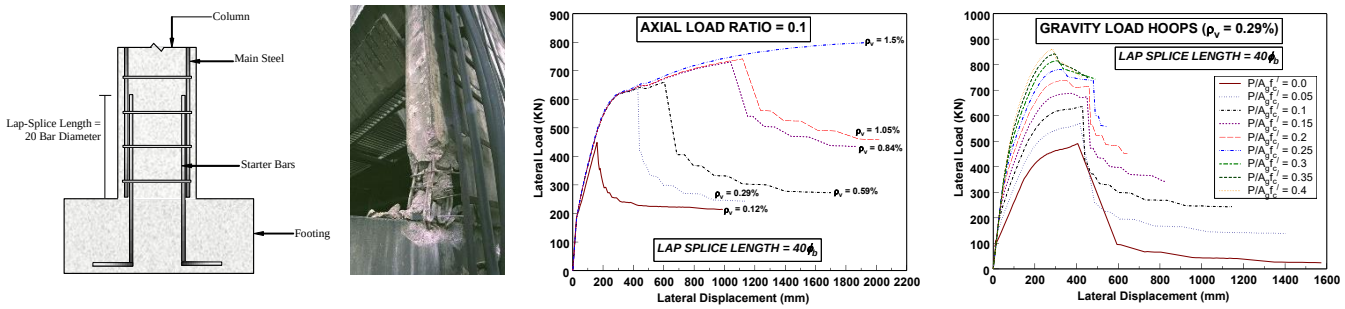
Reinforced concrete columns are fundamental structural components in engineering structures, and if not carefully designed and/or constructed may be susceptible to failure which may lead to partial or total collapse of the structure. Recently, there has been an increase in the use of fiber reinforced polymer (FRP) for strengthening of concrete structures involving existing columns by bonding circumferential (confining) FRP wraps to their exterior for both axial and seismic strengthening. However, the application of FRP wraps in buildings has been hindered due to uncertainties regarding their behavior in fire. The matrix components of currently available FRPs are combustible and susceptible to deterioration of mechanical and bond properties at elevated temperatures. This may raise concerns regarding the fire performance of FRP-strengthened reinforced concrete columns in buildings, where fire is one of the primary design considerations. Accordingly, those FRP systems need to be insulated against fire or elevated temperatures. Yet, most of the commercially available insulation measures are not only expensive but also, in most cases unable to protect the FRP system during fires, by maintaining the temperature of the FRP system below its glass transition temperature. The primary goal of this research project was to develop a new fire insulation measure, that is economic yet effective and, which can be used to protect concrete structures with applications to both un-strengthened and FRP-strengthened reinforced concrete columns exposed to fire or elevated temperatures. This will ultimately save not only our valued infrastructure but human lives as well.



f. Reinforced concrete bridge columns seismic analysis with lap spliced reinforcement

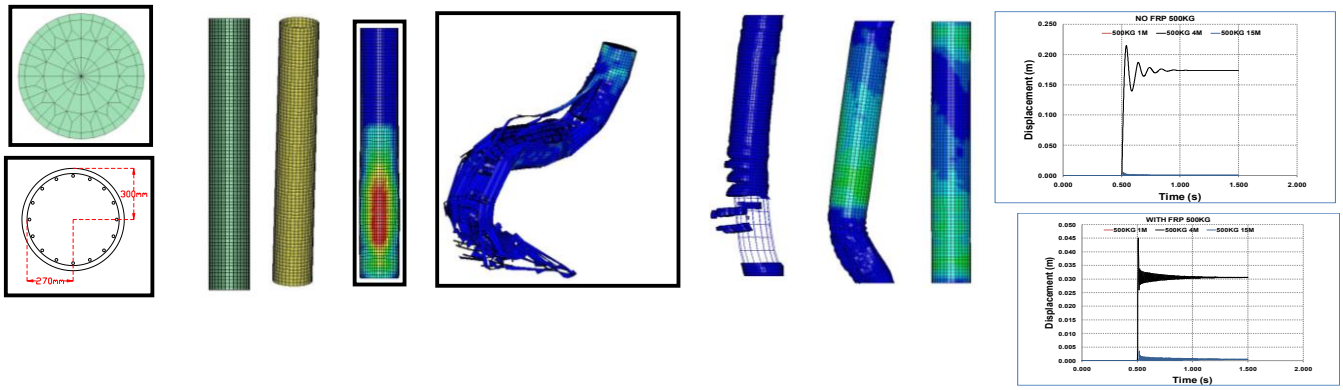
Pushover analysis was conducted on a total of 324 R/C rectangular bridge columns with lap spliced reinforcement, using a previously developed computer program. The computer modeling is based on moment-curvature analysis of the column section with the inclusion of a bond/slip mechanism and concrete confinement model. The program was revised to integrate the effectiveness of lateral hoop reinforcement on both concrete confinement and lap splice clamping. Constant axial load was applied to analyze the columns. The parameters involved in the study were: lap splice length, volumetric ratio of column hoops and axial load ratio. The top lateral load-displacement characteristics of the column were enhanced as a result of increasing the lap splice length at the column base. For the column to achieve a minimum displacement ductility of 4.0, lap splices as short as $20\phi_b$ and $30\phi_b$ (ϕ_b = longitudinal bar diameter) should be avoided at expected plastic hinge locations. It was found that, for the same lap splice length, increasing the volumetric ratio of hoop reinforcement improved the lateral load-displacement response. It was also found that increasing the axial load on the column retarded bond slippage of lap spliced

reinforcement until higher stages of lateral loading. In addition, as the axial load on the column increased, it not only helped in increasing its flexural strength and post-cracking lateral stiffness but also decreased its ultimate lateral displacement and ductility. It is concluded that, the best performance for a wide range of axial load ratios was exhibited by columns having the ACI's classes A and B tension splices and laterally reinforced with hoops required by the ACI code for seismic design.



g. Simulation of blast loading effect on carbon fiber reinforced polymers (CFRP) retrofitted concrete structures

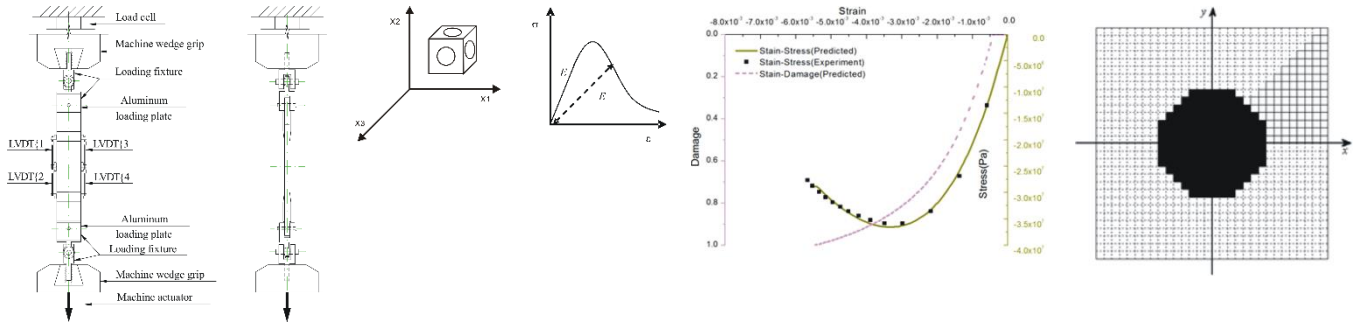
This project aims to investigate the effect of blast loads generated as a result of explosive charges, on reinforced concrete columns- both un-strengthened and strengthened with carbon fiber reinforced polymer (CFRP) sheets. For this purpose high fidelity physics based finite element analytical models were created and the effects of the blast loads on these analytical models studied. The program used to model these columns was LS-DYNA which uses explicit time integration algorithms for solving the problems. A parametric study was also performed as part of this investigation to examine the effects of stand-off distance, charge weight and the presence of CFRP retrofitting on the level of damage to the RC column. Different charge weights of 20, 50, 100, 200, 500 and 1000 kg equivalent weight of TNT were used in the study, and the stand-off distance was varied from 1 meter to 4 meter and 15 meters. Both the un-strengthened and strengthened columns were subjected to these blast loads at the particular stand-off distance. Results described in the paper indicate that CFRP strengthening could be an effective solution to limit the damage caused by smaller explosive quantities. It was noticed that stand-off distance plays a very important role in mitigating the adverse effects of a blast, as is evident from the performance of the analytical models, which is also consistent with earlier studies. The results also indicate that the maximum lateral deflection experienced by the column decreased with the increase in the stand-off distance and also decreased for the columns strengthened with CFRP, compared with the un-strengthened columns.



h. A FEM-BEM interactive coupling for modeling the piezoelectric health monitoring systems

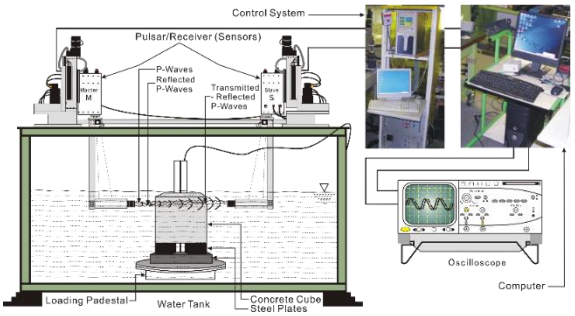
In this project, finite element and boundary element methods are coupled together to model the interaction of a piezoelectric ceramic working as an actuator with an elastic material. Piezoelectric-elastic material's interaction occurs in smart structures. This work is aimed at determining the actuation effects being transferred from the actuators to the host and the resulting overall structural response. To obtain the amount of these actuations, the system of the host structure and an actuator has been modeled by using coupled finite element boundary element method in frequency domain. The host structure, which is assumed as an isotropic elastic solid region is modeled as a half space. The piezoelectric ceramic region is modeled by the 3-D finite element method, while the elastic half space with boundary element method. Finite element model of piezoelectric ceramic and boundary element model of the elastic half space are coupled together at their interface such that the vibrations of the piezo-actuator

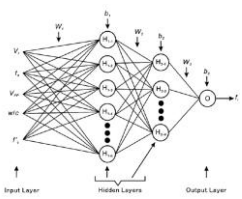
induce vibrations in the elastic half space. A couple of examples are given to show the induced displacement field around the piezo-actuator on the surface of the elastic medium. The results show that high jump in magnitude of horizontal displacements at the corners of the actuator attached to the structure occurs, which is an indication of high stress concentration, of the shear stress type at the corners. This stress concentration sometimes causes complete debonding of the actuator from the base structure. By using the suggested BEM-FEM coupled model for actuators with different dimensions or material properties much useful information concerning the amount of actuation and load transfer can be obtained. The presented work is a step towards modeling of structural health monitoring systems.

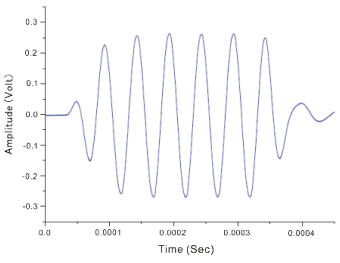


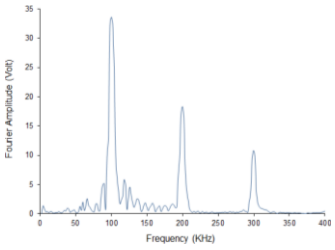
j. Residual strength health monitoring of non-linear ultrasonically evaluated damaged concrete using artificial neural network

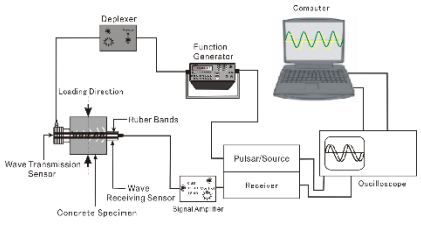
This project deals with the combination of non-linear ultrasonic and artificial neural networks (ANNs) for the non-destructive evaluation of the damages in concrete under stressed state. Two networks, one using raw variables and another using dimensionless variables were trained and tested to predict concrete damages. Input data to the neural network is the time-domain signals of the received ultrasonic waves, obtained from the experimental studies carried out as reported in the earlier literature involving experimental data base of 75 ultrasonic measurements performed on concrete cubes with water–cement (w/c) ratios of0.40, 0.50 and 0.60 respectively. Both networks were two-layer-perceptrons trained according to back-propagation algorithm. The results of this research highlight the potential of artificial neural networks for solving the problem of concrete damage evaluation using non-linear ultrasonic measurements. It was found that the proposed ANN models predict the strength of concrete laboratory cubes with low absolute errors. The performance of ANN model for predicting the residual strength of concrete using the raw data is better than the prediction using grouped dimensionless variables.

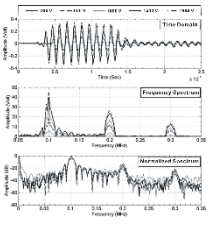












4. SUCCESSFULL ACADEMIC & ADMINISTRATIVE ACHIEVEMENTS DURING UST VICE CHANCELLORSHIP

After assuming the charge of Vice Chancellor, University of Science and Technology Bannu, the University was facing several challenges including, writ of administration, and recognition of programs by PEC, NBEAC, NSEAC and HEC, Finances for smooth sailing and over burdening of extra purchases. The University was also suffering from every day strikes by students, faculty members and administrative staff. After taking over the charge, the first 100 days were considered as challenge and dedicated to address the burning issues of the University.

i. New Projects approved to UST Bannu

New projects worth Ca. PKR 4.20 Billions have been approved for UST Bannu with the following details;

a)	Girls Hostel at main Campus UST Bannu	240	Million
b)	Establishment of Women Campus at Bannu	970.908	Million
c)	Infrastructure Development Project	1200	Million
d)	Strengthening of UST Bannu	1759	Million

ii. Separate Feeder to UST Bannu Main Campus

The University was supplied with the local power supply that has lot of fluctuations and load management schedule. The matter was causing problems in research activities and lab work of the research students and scholars. Management of the University has decided to approach the PESCO authorities for separate electricity feeder. For the purpose an amount of 10.086 Million was submitted to PESCO for provision of separate feeder. All necessary construction work has been now completed and supply from new feeder will be started in the coming week.

iii. Formation of First Ever Statutes of UST Bannu

The University of Science and Technology Bannu was lacking of its own statutes since its inception. The administration of the University was compelled to adopt rules of its sister universities from time to time. Besides of the several hurdles faced, committee in light of the decisions of Senate was constituted. In result of the chain of meetings, finally statutes of UST Bannu are now finalized and have been placed before the Honourable Chancellor, UST Bannu for vetting.

iv. Infrastructure Development

All the possible efforts were made to complete the on-going projects of Academic Block and University Shopping Plaza. The Academic Block will accommodate more than 700 students of departments of Civil Engineering, Electrical Engineering and Mathematics. The project has been completed with the financial support of govt. of KPK. Similarly, the University shopping plaza which was supposed to be completed within 36 months was lying pending for handing over to University and subsequently to ship-owners. All the short comings were immediately addressed through a committee, and plaza has been now handed over to the University. The University shopping Plaza will be proved to be a source of income worth 2.4 million per year in addition to the already established University Market 3.146 million per year.

v. Beautification and Horticulture Up-Gradation

The UST Bannu is spread over a land of more than 1400 kanals but were lacking of proper horticulture and beautification plan. In the first month directives were issued for up-gradation of the horticulture. The Administration section played a vital role for up gradation of horticulture of the University. Students and staff members were mobilized to play their due role in plantation throughout the University campuses.

vi. Streamlining of Advance Studies Research Board

The meeting of Advance Studies and Research Board was not conducted since a year time. Most of the research students were suffering of the delay. The Academic section was directed to conduct it within a week time by the Vice Chancellor after realizing the issue. The section concerned was also directed to hold the meeting of the board on weekly basis. It was much appreciated by research students particularly.

vii. Conduction of meeting of Departmental Promotion Committee

Meeting of departmental promotion committee was conducted in order to assure peace of mind in the employees and to fulfill their long awaited requests.

viii. Conduction of F& PC Meeting and enhancement of finances of the University

Just after taking charge of the Vice Chancellor Office, efforts for finances have been made. In this regard, extra purchases were stopped and un-authorized use of vehicles was stopped. In this way a portion of govt. exchequer was saved. Besides all the necessary purchases, the reserve of University is now enhanced from 480 to 510 million.

ix. Reduction in POL Charges by 70-80%

The University was spending huge amount on POL. in this regard, directives were issued to withdraw usage of all unnecessary transport by the University officials. Further to this, running of Generators beyond the duty hours were also stopped. In result about 70-80% of the PoL charges were reduced.

x. Collection of Long Last Dues from Students

It was as astonishing fact that about 70 million of fees were overdue on students and some of the students haven't paid their dues up to 8th semester.

All the chairmen/HoDs were directed to ensure the speedy recovery of this amount and not to let any student to sit in the exam without clearance of dues. By the Grace of almighty Allah, all the dues have now been recovered from the defaulter students.

xi. Collaboration with Universities of China

The Vice Chancellor, in response to invitation by Nanjing University of China has paid a 15-days visit to People Republic of China. During his visit the Vice Chancellor signed memorandums of understanding with South East University and Xian University of China regarding mutual cooperation in research and scholarship for students and faculty members of UST Bannu in these Universities.

xii. 2nd Convocation of UST Bannu

University of Science & Technology Bannu conducted 2nd Convocation. President Islamic Republic of Pakistan, H.E. Mamnoon Hussain was the Chief Guest, who inaugurated the event. In total, 121 graduates were awarded degrees out of these 04 PhD, 07 MPhil and 110 received Master/Bachelor degrees in various disciplines. The Chief Guest awarded 75 Gold Medals to the position holders. President Islamic Republic of Pakistan, H.E. Mamnoon Hussain also inaugurated three mega projects including, Women Campus of the University, Students Startup Business Centre (SSBC) and Human Resource Development Centre (HRDC).

xiii. Releasing Land of UST Bannu from Encroachments

A peace of about 05 Kanals of commercial land of UST Bannu situated in heart of Bannu City was occupied by the encroachers since long. The Vice Chancellor, with the consultation of Director Administration and vital cooperation of Deputy Commissioner Bannu has released this land. Accordingly, precast wall was also constructed around this area opposite to Judicial Complex Bannu City.

xiv. Conduction of Students Expo

In order to promote healthy activities, an Expo was arranged in the IECS Campus of this University. Expo was continued for 03 days in which different stake holders, affiliated colleges of UST Bannu, Bannu Medical College and local industrialists has displayed their stalls.

xv. Conduction of Sports Festival

A one day sports festival was organized for the on campus students, Faculty and staff members of UST Bannu. The main motto of the festival was to bridge the communication gape, if any amongst the different stakeholders of the University and ensure healthy environment.

xvi. Inter-Colleges Sports Tournaments

As per requirements of the HEC and to promote healthy co-curricular activities, the University has organized inter-colleges sports tournaments. Separate tournaments were organized both for male and female affiliated colleges of UST Bannu. Students have participated in Cricket, Football, Tug-of-War, Table Tennis, Volley Ball, Hockey and Badminton.

xvii. Books Fair

The University in order to promote the book culture amongst in students arranged a Book Fair. Several Book corporations were called to have a verity of books and competition. Students and faculty members of UST Bannu and its affiliated colleges were also invited to visit the venue.

xviii. Promotion of Blood Donation Society

The students of UST Bannu are always encouraged for the noble cause of Blood Donation. A society named as Blood Donation Society (BDS) is working throughout the campuses of UST Bannu. Its annual oath taking ceremony has been conducted in the Main Campus of UST Bannu.

xix. 1st National Conference on Sustainable Development through Bio-Diversity Conservation

The first national conference on Sustainable development through Bio-Diversity Conservation has been arranged by the Department of Botany with the collaboration of HEC, Islamabad. Participants from Universities all over the Pakistan have participated in the Conference and shared their experiences with each other and students.

xx. Awareness Walks

The University has arranged walks for its student on different social issues like cleanliness, anticorruption, drugs etc. similarly Plantation Campaign have also been arranged for its students.

xxi. Academic Council Meeting

After conduction of successful meetings of boards of studies and Advance Studies and Research Boards meetings of Academic Council were further conducted in order to put the policy level agendas before it.

xxii. Establishment of Women Campus, UST Bannu

The University with the planning to reduce the drop out ratio of female students of the area, has generated the idea of establishment of Women Campus. Initially with the financial support of Higher Education Commission, Islamabad, departments of Sociology, Education and Research, Urdu and Home Economics were started. President, Islamic Republic of Pakistan, HE Mamnoon Hussain has formally inaugurated the Campus.

xxiii. 1st National Conference on Recent Innovations in Medicinal Chemistry and Bio-Chemistry

A 03 days conference on the topic “1st National Conference on recent innovations in Medicinal Chemistry and Bio-Chemistry” has been arranged with the financial support of HEC, Islamabad. Scholars and researchers from Sindh, Punjab and Baluchistan has also participated in the conference.

xxiv. Allama Iqbal Speech Competition at UST Bannu

The Central Library had arranged speech competition in English and Urdu on the topic “Allama Iqbal and Youth” for the students of all departments of UST Bannu and affiliated colleges. The contestants highlighted the pain for youth by Allama Muhammad Iqbal in light of his poetry. At the end of competition, winning students were rewarded with shields and cash prizes. The Vice chancellor Prof. Dr. Engr. Syed Abid Ali Shah distributed the prizes among the students.

xxv. Bio- Metric Attendance System Implementation

The University, in light of the directives of Higher Education Department, Peshawar has installed bio-metric machine for attendance of its faculty and staff members. A number of machines have been installed on various spots for facilitation of the employees. The system will be linked with pay section and Vice Chancellor's Office in order to have regular check on the employees of the University.

xxvi. Lab Safety and Labs Up-Gradation

The existing labs have been upgraded as per requirements of HEC and PEC to meet the minimum criteria and facilitate more students. The University has also conducted lab safety sessions for its students and researcher in order to minimize and risk to their lives.

xxvii. Starting of New Market-Based Disciplines

The University has started marked based disciplines to facilitate the area in more effective way. In this regard BSc Civil Engineering, Zoology, Sociology, Home Economics and Urdu have been announced, while departments of Law, Pharmacy and Petroleum Engineering will be started in the coming session.

xxviii. Designation of Campus Coordinators

In order to have close communication with the Vice Chancellor and speedy disposal of daily routine matters, senior and experienced faculty members have been designated as campus coordinators. The Campus coordinators were designated for Woman Campus, IMS Campus, IECS Campus and Main Campus. The Coordinators have closed links of communication between UST Bannu employees and the Vice Chancellor's Office. Regular meetings of Vice Chancellor, Campus Coordinators and Sectional Heads are conducted.

xxix. Functionalization of Girls Hostel after successful completion

A new Hostel for girls' students has been recently completed from University's Own Sources and students are shifted to the said hostel. Salient features of the hostel are including 24-Hours express line electricity, internet connectivity through SMART University project, state of the art new furnished rooms and late time central library facility.

xxx. Conduction of Conference by Young Think Tank

The University has managed to conduct a one day conference for its students by Young Think Tank. Mr. Andre De Bussy (A French Motivational Speaker) was resource person. The main theme of the conference was to develop self-respect and approaches towards self-sufficiency in the new generation.

5. RESEARCH INTERESTS

a. Non-linear ultrasonic and acoustic emission evaluation of structural materials degradation
b. Application of artificial neural network (ANN) to analysis of steel and concrete structures
c. Inverse problems in acoustic tomography
d. Punching shear of flat-plate slab-column connections in high-rise buildings
e. Mechanics of structures
f. Fracture mechanics
g. Infrastructure health and system monitoring, repair, rehabilitation/retrofitting of Structures
h. Ecosystem, ecological surveying expertise in assessment of establishing micro hydropower (MHP) projects

6. PROFESSIONAL AWARDS/SCHOLARSHIPS AND GRANTS

a. 4-year merit scholarship during B.S. (Civil Engineering)
b. B.S. (Civil Engineering) with honors

c. Presidential Gold Medal in Structural Engineering during M.S. (Structural Engineering)
d. First Position during M.B.A. (Project Management)
e. Offered a job of Assistant Technological Advisor at Ministry of Science and Technology (MoST), Government of Pakistan, Islamabad after appearing first position in the merit list of selection board.
f. Award of Ph.D. Scholarship and research grant of over 100,000 Euro from German Research Foundation (DFG)
g. Award of Postdoctoral research fellowship from the Matsumae International Foundation of Japan
h. Award of Postdoctoral research fellowship (long term) from the prestigious Japan Society for the Promotion of Science (JSPS) and research grant of over 3 million Japanese Yen
i. Best Presentation and Best Paper Award at the 6th Regional Symposium on Infrastructure Development (RSID 6) at Bangkok, Thailand
j. Included in the WHO's WHO in Science and Engineering (2011-12)
k. Award of the project of health monitoring, repair and retrofitting of King Khalid Bridge, Riyadh of worth of 2.0 million Saudi Riyal from King Abdul Aziz City for Science and Technology (KACST).
l. Award of Postdoctoral research fellowship (long term) for experienced researchers from the prestigious Alexander von Humboldt Foundation (AvH) Germany and research grant of over 150,000 Euro
m. Funds generation of worth PKR 4.50 Billion from Planning Commission of Pakistan under CDWP schemes, from P and D Deptt Govt of KPK under PSDP and Higher Education Commission (HEC) for infrastructure development and upgradation as well as strengthening of University of Science and Technology (UST) Bannu, KPK, Pakistan

7. EXPERIENCE/SKILLS

a. UTM (Universal Testing Machine-2000 kN) Servo-hydraulic for testing of compression members
b. Large structural frames (6000 kN capacity) for testing of large scale proto-type flexural and compression members
c. Non-linear ultrasonic testing unit for NDE of concrete with compression induced damages
d. Evaluation of concrete damages by means of Acoustic Emission (AE) technique
e. Fast Fourier Transform (FFT) technique
f. ACI code, ASTM, AISC, LRFD standards for analysis and design of steel structures, German and Japanese standards for design of concrete structures
g. ABAQUS (FEM) software
h. Assessment and Health Monitoring of large scale on-shore/off-shore structures

8. MEMBERSHIPS OF PROFESSIONAL ORGANIZATIONS/BODIES

a. Registered as Professional Engineer with Pakistan Engineering Council (Life Registration)
b. Member German Engineering Research Foundation (2001-2005)
c. Member Technical Committee for Concrete Reinforcing Materials, Botswana Bureau of Standards (Member of International Organization for Standardization-ISO), Gaborone Botswana-Southern Africa (2005-2006)
d. Member Saudi Council of Engineers (2009-Present)

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83. Ullah, H., Karim, F., Shah, A. A., Iqbal, Q., Afridi, H. J., ‘‘Plastic Bottles Waste Utilization as Modifier for Asphalt Mixture Production’’ ***UMT*** National Multidisciplinary Engineering Conference ***2015*** (***NMEC***-15), Lahore, Pakistan, November 20-21, 2015. (Submitted for Presentation)

11. INTERNATIONAL CONFERENCES/MEETINGS/WORKSHOPS ATTENDED

1. ‘‘*International Conference on Trends in Tall Buildings*’’, University of Leipzig and Technical University Darmstadt, Frankfurt, Germany, September 5-7, 2001.
2. ‘‘*First European Conference on Innovation in Civil Engineering (Self-Compacting Concrete)*’’, University of Leipzig, Leipzig, Germany, November 29-30, 2001.
3. ‘‘*Sixth International Symposium on Utilization of High Strength/High Performance Concrete*’’, Institute for Structural Concrete and Building Materials, University of Leipzig, Leipzig, Germany, June 16-20, 2002.
4. ‘‘*Second European Conference on Innovation in Civil Engineering* (*Fiber-Reinforced Concrete*)’’, University of Leipzig, Leipzig, Germany, November 28-29, 2002.
5. ‘‘*A National Meeting on New Calculation Norms In German Standards (DIN)*’’, University of Leipzig, Leipzig, Germany, June 10-11, 2003.
6. ‘‘*Third European Conference on Innovation in Civil Engineering* (*Ultra High Performance Concrete*)’’, University of Leipzig, Leipzig, Germany, November 27-28, 2003.
7. ‘‘*Computer Aided Analysis and Design of Structures*’’, NWFP University of Engineering and Technology, Peshawar, Pakistan and ACECOMS, Asian Institute of Technology, Bangkok, Thailand, April 07, 2005.
8. ‘‘*Fire Resistance and Safety of Building Structures in Pakistan*’’, NWFP University of Engineering and Technology, Peshawar, Pakistan and Old Dominion University, Norfolk, Virginia, USA, June 18, 2005.
9. ‘‘*The Staff Induction Course*’’, Centre for Academic Development, Teaching and Learning Unit, University of Botswana, Gaborone, Botswana (Southern Africa), February 27-March 02, 2006.
10. ‘‘*Japan Society of Civil Engineers (JSCE)-61st Annual Meeting*’’, Kyoto University, Kyoto, Japan, September 06-08, 2006.
11. ‘‘*Japan Society of Civil Engineers (JSCE)-62nd Annual Meeting*’’, Hiroshima University, Hiroshima, Japan, September 12-14, 2007.
12. ‘‘*Fifth International Conference on Urban Earthquake Engineering*’’, Centre for Urban Earthquake Engineering, Tokyo Institute of Technology, Tokyo, Japan, March 4-5, 2008.
13. ‘‘*Japan Society of Civil Engineers (JSCE)-63rd Annual Meeting*’’, Tohoku University, Tohoku, Japan, September 10-12, 2008.
14. ‘‘*Tenth International Summer Symposium*’’, JSCE Headquarters, Tokyo, Japan, September 18, 2008.
15. ‘‘*Alexander von Humboldt Foundation Annual Meeting*’’, RWTH Aachen University, Aachen, Germany, April 25-27, 2012.
16. ‘‘*COMSOL Multiphysics Workshop*’’, Institut für Mechanik und Mechatronik, Workshop,Universität Siegen, Siegen, Germany, May 07**,** 2012.(In German)

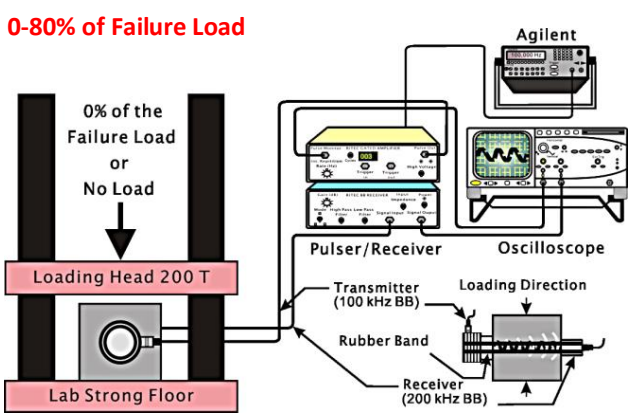
17. ‘‘*Modeling FracturewithinLocal Max-EntMeshfree Approximation Schemes*’’, Institut für Mechanik und Mechatronik, Kolloqium,Universität Siegen, Siegen, Germany, May 08**,** 2012.
18. ‘‘*Eulerian Elastoplasticity: Basic Issues and Recent Results*’’, Institute of Continuum Mechanics, Colloquium,Ruhr-University Bochum, Bochum, Germany, June 11**,** 2012.
19. ‘‘*A Two-Days Workshop in Structural and Applied Mechanics*’’, Fakultät IV, Department Bauingenieurwesen, LehrstuhlfürBaustatik,Universität Siegen, Siegen, Germany, July 23-24**,** 2012.
20. ‘‘*Computational mutiphysics: fluids, structures, electromagnetics*’’, Institute of Structural Mechanics, Colloquium,Department of Civil Engineering, Swansea University, Wales, UK, October 23, 2012.
21. ‘‘*Siegener Bautag: Annual Conference*’’, Fakultät IV, Department Architektur und Bauingenieurwesen, Universität Siegen, Siegen, Germany, November7-9**,** 2012.
22. ‘‘*Siegener KIB*-Seminar: Erdbeben *und Zivile Sicherheit: Welchen Beitrag können Bauingenieure leisten?*’’, Fakultät IV, Department Architektur und Bauingenieurwesen, Universität Siegen, Siegen, Germany, January10**,** 2013.

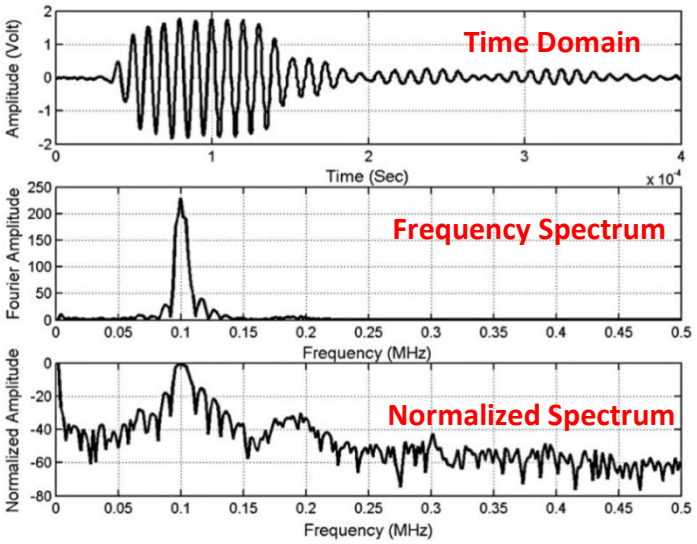
12. INVITED TALKS

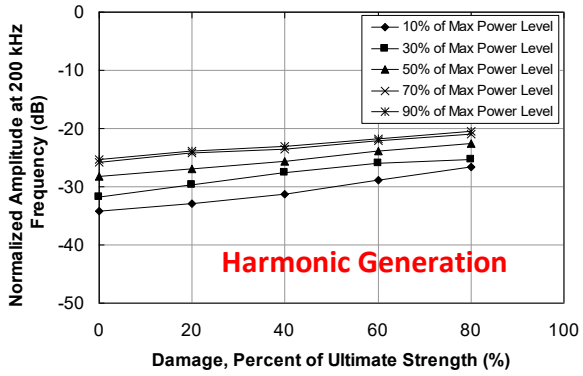
1. ‘‘*Introduction to Pakistan and my Research on Non-linear Ultrasonic Testing of Damaged Concrete*’’, JSPS Science Dialogue Program, Tsuru High School in Yamanashi Prefecture, Otsuki, Yamanashi, Japan, November 2, 2007.
2. ‘‘*Life and Research in Japan*’’, JSPS Orientation to New Fellows, JSPS Headquarters, Tokyo, Japan, January 21, 2008.
3. ‘‘*Pakistan and Research about Non-linear Wave Propagation in Concrete*’’, JSPS Science Dialogue Program, Iwata Minami High School in Shizuoka Prefecture, Iwata, Shizuoka, Japan, July 16, 2008.
4. ‘‘*Utilizing Innovative Techniques for Safety and Preservation of Structures*’’, Al-Yasmeen International School and College,Malaz, AR-Riyadh, Kingdom of Saudi Arabia, February 16, 2010.
5. ‘‘*Durability of Building Materials and Structures*’’, Department of Civil Engineering,KU Leuven - University of Leuven, KasteelparkArenberg 40, B-3001 Heverlee, Belgium, April 11, 2012.

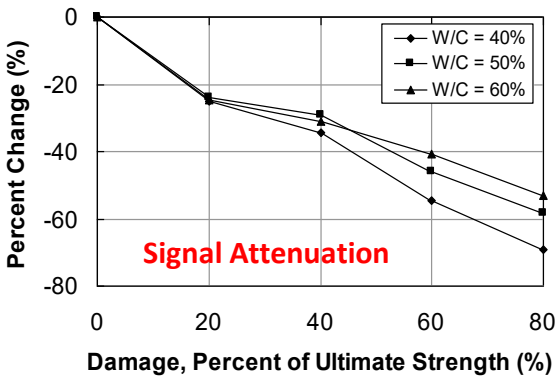
13. RESEARCH STATEMENT

- **Non-Linear Ultrasound**

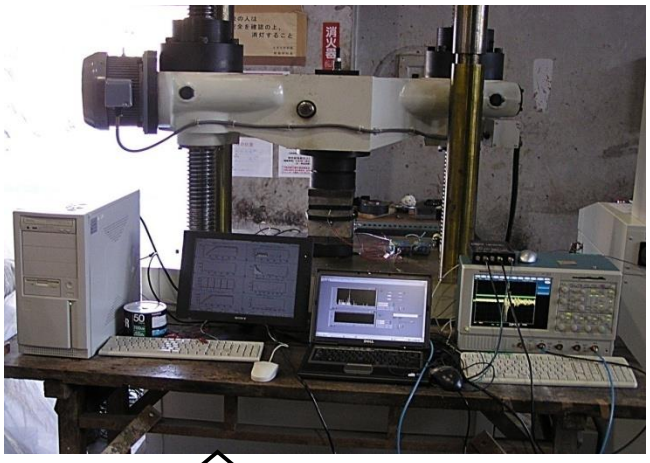


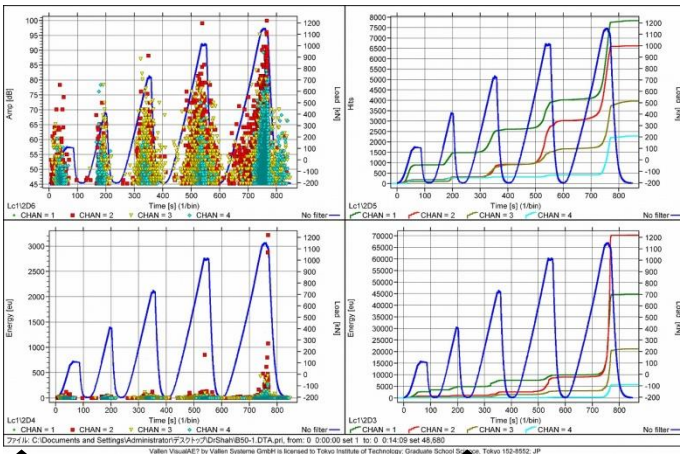


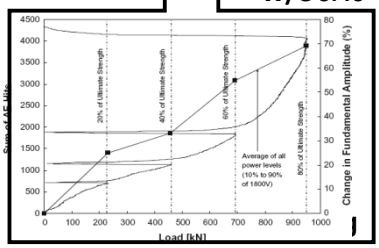


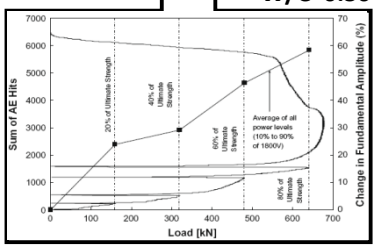


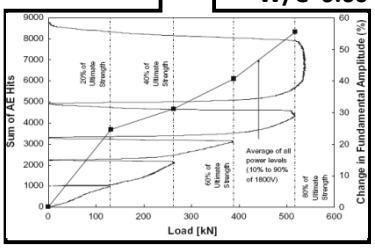
- **Acoustic Emission**

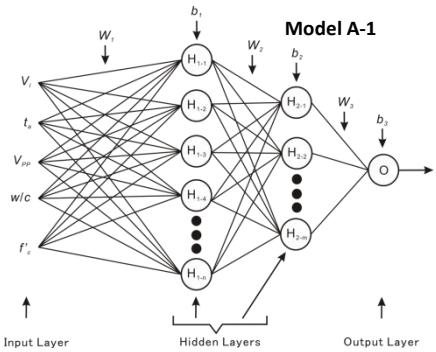


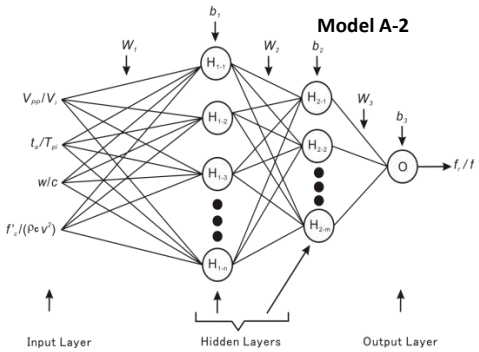


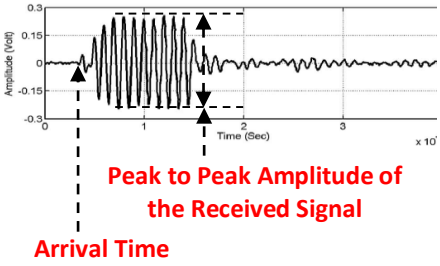
- 





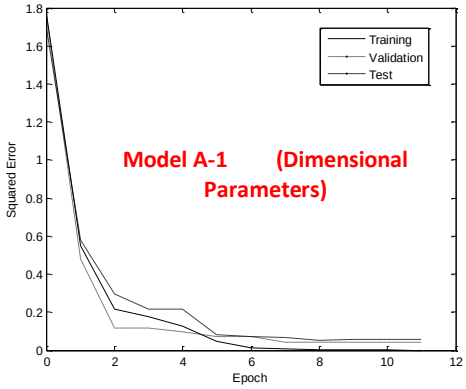


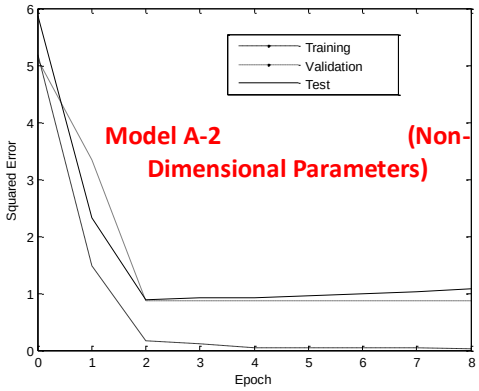


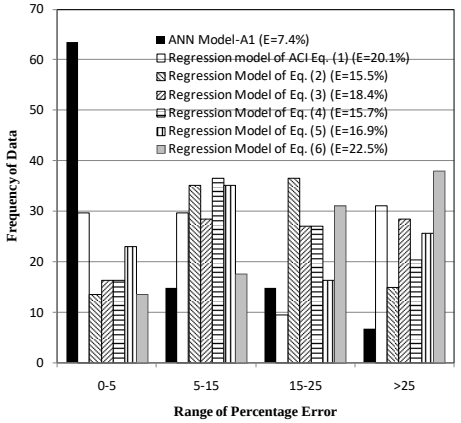


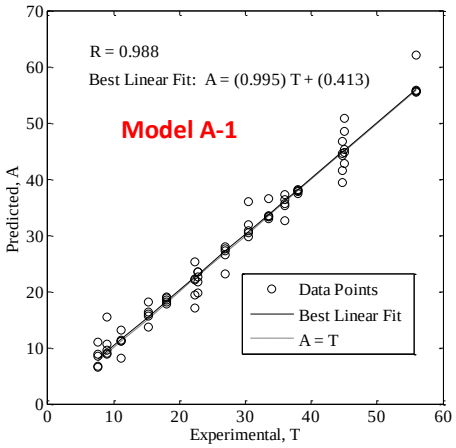
Feed Forward Back Propagation Algorithm

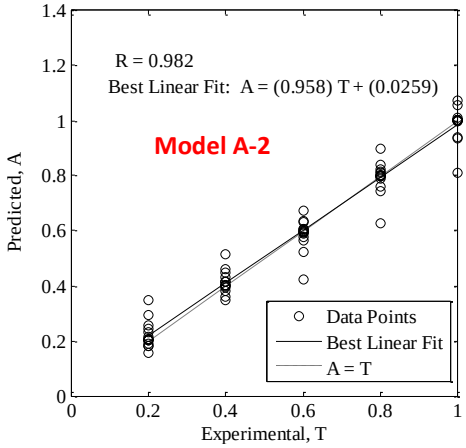
MatLAB Programming Tools











- Detecting the defects or damages in concrete at early stages of in-situ structures
- Accurate maintenance and repair decisions in a timely manner
- Performing structural integrity and health monitoring activities

14. PRESENTATION/TEACHING PHILOSOPHY & INTERESTS

My goal as a teacher is to bring a true understanding to the students. I strive to engage, challenge and inspire growth in my students. Classes in the engineering sciences are often taught in a rote way with entirely passive learning, turning them off to these subjects. In addition, students with non-traditional backgrounds are often insecure about their abilities to learn subjects in engineering. Students focus on memorization, which does not allow them to take their knowledge and apply it in other situations. Often even high scoring students cannot verbalize clearly what it is they have learned in a particular class, or forget it quickly after the class has ended. I believe that only through a synergy of classwork, math, and lab work can the students gain a real understanding that will stay with them in whatever area they choose to pursue in future. Because I am very friendly and cooperative, I can understand better what they may find interesting, or difficult. I find that I have an intuitive understanding and ability to help students gain the confidence and knowledge that they will be able to retain.

To this end, I seek a balance in my courses between lecturing to students and asking them to make discoveries. I encourage students to engage with the topic at hand, with me, and with each other in the belief that good teaching depends upon intellectual exchange. My approach to student assessment reflects my two goals. First, the student is expected to master a body of knowledge by demonstrating on exams a familiarity with those composers, pieces, terms, and concepts studied in the course. Second, students are given the opportunity to reflect upon the material at greater leisure in written assignments that emphasize the skills of critical think ng and listening acquired during the semester. While my standards are high, I help the students to meet expectations by providing office hours, review sessions, and the chance to submit draft papers and revisions.

I believe in a flexible manner of instruction, responsive to the unique atmosphere of a given class. In conducting either a large lecture or small seminar, I am aware of students' different experiences and temperaments in hopes of developing their strengths while ameliorating their weaknesses. Every student, regardless of background, can improve his or her ability to listen to and understand a piece of technological advancement. In lectures, discussions,

and assignments, I show that engineering responds to various modes of inquiry: analytic, hermeneutic, cultural, and historical; thus, students are equipped to explore the possibilities of each perspective and emboldened to push beyond their own experience to expand their skills. In the end, I have enriched a student's ability to think about, discuss, and develop design methodologies with a new awareness of their aesthetic and humanistic significance.

- Engineering Mechanics
- Mechanics of Materials
- Concrete Technology
- Infrastructure Health and System Monitoring
- Reinforced and Pre-stressed Concrete Design
- Structural Safety and Life Assessment of Structures

15. REFERENCES

Available upon request