

MUHAMMAD ASLAM BHUTTO

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Objectives

- To be involved and produce quality research work which can support and maintain the existing research activities as well as provide new and innovative ways.
- To remain a seeker of knowledge always.
- To work for the betterment of mankind without any religious, social and cultural constraints.

Personal

Date of birth 13th August 1974

Nationality Pakistani

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Honours and Awards

March 2013

Won **SECOND Prize** in Poster Completion at 15th Young Researchers' Conference (YRC) organised by The Institution of Structural Engineers (IStructE), March 14, 2013, London, United Kingdom.

January 2010

Awarded **FULLY FUNDED SCHOLARSHIP** for pursuing PhD in Civil Engineering jointly sponsored by the Department for Transport (DfT), United Kingdom and NED University of Engineering & Technology Karachi, Pakistan

February 2003

1. Awarded **GOLD MEDAL and CERTIFICATE OF MERIT** during First Convocation of Quaid-e-Awam University of Engineering, Science & Technology (QUEST) Nawabshah for securing **FIRST** Position in Faculty of Engineering during Bachelor of Engineering Examinations 1999.
2. Awarded **SILVER MEDAL and CERTIFICATE OF MERIT** during First Convocation of QUEST Nawabshah for securing **FIRST** Position in Department of Civil Engineering during BE (Civil) Examinations 1999.
3. Awarded **CASH PRIZE and SHIELD** during First Convocation-2003 of QUEST Nawabshah for outstanding performance in the convocation arrangements.

Key Qualifications

2010-2014 **PhD (Civil Engineering)**

School of the Built Environment

Heriot-Watt University Edinburgh EH14 4AS, United Kingdom

Thesis title: FRP-strengthening of webs of steel plate-girders

2005-2007 **M.Engg (Civil Engineering)**

Faculty of Civil Engineering & Architecture

NED University of Engineering & Technology Karachi, Pakistan

Major courses: Project Management, Public Infrastructure, Accounting.

1993-1999 **BE (Civil Engineering) Gold Medallist**

Faculty of Engineering

Quaid-e-Awam University of Engineering, Science & Technology (QUEST) Nawabshah, Pakistan

Major courses: Steel Structures, Structural Analysis, Strength of Materials, Engineering Mechanics, Quantity Estimation, Construction Management.

Funded Research Project

January 2010 to December 2013

Principal Investigator

‘Carbon Composites for the Strengthening of Steel Structures’

Sponsored by: Department for Transport (DfT), London, United Kingdom

Executed at: School of the Built Environment, Heriot-Watt University Edinburgh, United Kingdom

PhD Thesis (Summary)

Title ‘FRP-strengthening of webs of steel plate-girders’

The thesis describes the use of fibre-reinforced polymer (FRP) composites to strengthen the webs of steel plate-girders. The tests and finite element analyses (FEA) of the un-strengthened and FRP-strengthened plate-girders were carried out. In the FRP-strengthened plate-girders, the web panels were bonded with GFRP pultruded section stiffeners or layers of carbon or glass FRP composite fabrics. The FRP-strengthening increased the ultimate load of the steel plate-girders by up to 54%. The test results and the FEA predictions for the un-strengthened and GFRP-strengthened specimens were in good agreement. For the FRP fabric-strengthened specimens there was good agreement between the test results and FEA predictions up to the breakdown of the steel-fabric bond. Design procedures for strengthening using FRP composites have been developed. The procedures can be used to estimate the ultimate loads of the FRP-strengthened plate-girders and to determine the cross-sections of GFRP pultruded sections as web stiffeners. The test and FEA results of specimens have been used to validate the design procedures.

Teaching and Research Experience

April 2008 to-date

Assistant Professor

Department of Civil Engineering

NED University of Engineering & Technology Karachi, Pakistan

January 2010 to December 2013

Part-time Teacher and Lab Demonstrator

Bachelor and Master of Engineering programmes

School of Built Environment

Heriot-Watt University Edinburgh, United Kingdom

October 2002 to March 2003

Part-time Teacher

Bachelor of Engineering programme

Faculty of Engineering

Quaid-e-Awam University of Engineering, Science & Technology
(QUEST) Nawabshah, Pakistan

Courses taught at undergraduate and post-graduate levels

- Indeterminate structures
- Structural analysis
- Strength of materials
- Civil works quantity and cost estimations
- Engineering Mechanics
- Engineering Materials
- Civil Engineering Drawing
- Basic Civil Engineering

Areas of Research Interest

- Fibre-reinforced polymer (FRP) composites and their use for the strengthening and repair of thin-walled steel structures
- Behaviour of thin-walled steel members, such as plate-girders, subjected to high shear and low moments
- Finite element modelling and analyses of thin-walled steel members
- Design of FRP-strengthened plate-girders
- Use of new construction and building materials to increase the strength of cement and polyester resin grouts
- Use of new reinforcement techniques to increase the shear strength of the wall-slab junctions
- Noise pollution –effects and remedies

Skills and Interests

- LUSAS Finite Element Program (finite element analysis software application for the analysis, design and assessment of all types of structures)
- Certified courses in Advanced Project Management, Safety & Fire Fighting, Quality Management System, Audit & Financial Procedures, Internal Quality Auditing, etc
- Ability to work in Team as well as Independently and manage the things
- Always willing to learn and ready to accept challenges
- Self-dependency and problem-solving

Journal Papers

Bhutto, M.A. and May, I.M. (2014) Strengthening of webs of steel plate-girders using GFRP pultruded section stiffeners, *Journal of Construction Steel Research* (in process)

Memon, N.A., Keerio, N.U., **Bhutto, M.A.** and Sumadi, S.R. (2014) Experimental study of compressive strength of resin grout with marble powder, *Journal of Construction and Building Materials* (in process)

Ansari, A.A., **Bhutto, M.A.**, and Bhatti, N.K. (2014) *Strength of wall-slab junction with new form of shear reinforcement in a laterally loaded tall shear wall building*, *Journal of Civil Engineering and Architecture* (in process)

Jatoi, A.R., Samo, S.R., Abbasi, H. and **Bhutto, M.A.** (2014) *Monitoring and assessment of noise pollution: Case study of Cantonment railway station Karachi, Pakistan*, *Sindh University Journal of Research* (in process)

Bhutto, M.A., Ansari, A.A. and Memon, N.A. (2013) *Prediction of behaviour of steel plate subjected to shear*, *International Journal of Engineering and Advanced Technology (IJEAT)*, 10(10), p1-5.

Ansari, A.A., Bhatti, N.K. and **Bhutto, M.A.**, (2013) *Suitability of pre-perforated post-reinforced baked clay beam panels for low cost housing*, *American Journal of Civil Engineering*, 1(1), p6-15.

Ansari, A.A., **Bhutto, M.A.**, and Bhatti, N.K. (2013) *Mechanical system developed for performance evaluation of reinforced baked clay structural panels*, *International Journal of Emerging Technology and Advanced Engineering*, 3(5), p791-797.

Conference Papers

Bhutto, M.A. and May, I.M. (2013) *Use of FRP composites for strengthening of slender steel web panels subjected to shear*, 6th International Conference on 'Advanced Composites in Construction (ACIC 2013)', Queen's University Belfast, Northern Ireland, September 10-12, 2013, p167-179.

Bhutto, M.A., *Validation of design procedure for steel plate-girders with pultruded GFRP intermediate stiffeners*, First Postgraduate Conference on 'Infrastructure and Environment Scotland', Heriot Watt University, Edinburgh, United Kingdom, June 3, 2013, p.107-114

Bhutto, M.A., *FRP Composites for strengthening of steel bridge members*, 15th Young Researchers' Conference (YRC) organised by The Institution of Structural Engineers (IStructE), March 14, 2013, London, United Kingdom, p19-20.

Posters

Bhutto, M.A., *FRP Composites for Strengthening of Steel Bridge Members*, 15th Young Researchers' Conference (YRC) organised by The Institution of Structural Engineers (IStructE), March 14, 2013, London, United Kingdom.

Bhutto, M.A., *Finite Element Modelling of GFRP-strengthened Plate Girders*, Heriot-Watt Industry Day on 'Sustainable Development –Infrastructure Challenges and Solutions', February 26, 2013, Heriot-Watt University Edinburgh, United Kingdom.

Bhutto, M.A. and May, I.M., *Fibre-reinforced polymer (FRP) composites for strengthening of steel bridge members*, Royal Society of Edinburgh Poster Event in collaboration with the Institution of Civil Engineers (ICE), Edinburgh, United Kingdom, November 20, 2012.

Bhutto, M.A. and May, I.M., *Fibre-reinforced polymer (FRP) composites for strengthening of steel bridge members*, IIE Graduate School, School of the Built Environment, Heriot-Watt University Edinburgh, United Kingdom, November 14, 2012.

Presentations

May, I.M. and **Bhutto, M.A.** (2013) *Carbon Composites –the future*, The 21st Annual Conference and Presentations on 'Bridges 2013', The ICC Birmingham, United Kingdom, April 10, 2013.

Bell, B., May, I.M. and **Bhutto, M.A.** (2012) *Fibre-reinforced polymer (FRP) composites for strengthening and stiffening of steel bridge members*, Bridges Owners Forum (BOF), University of Cambridge, United Kingdom, September 25, 2013.

Memberships

- The Institution of Structural Engineers (IStructE) United Kingdom
- American Society for Testing and Materials (ASTM)
- Pakistan Engineering Council (PEC) Life Member

Administrative and Other Experience

April 2003 to April 2008

Deputy/ Assistant Registrar

NED University of Engineering & Technology Karachi, Pakistan

Major duties: Office administration, management and coordination work

March 2000 to April 2003

Assistant Controller of Examinations

Quaid-e-Awam University of Engineering, Science & Technology
(QUEST) Nawabshah, Pakistan

Major duties: Supervision of examinations and coordination work

June 1999 to March 2000

Site Supervisor

Telecom Foundation Sukkur, Pakistan

Major duties: Site supervision of civil works

References

1. Professor Ian M. May
Professor of Civil Engineering
School of the Built Environment
Heriot-Watt University Edinburgh, United Kingdom
Email: ianmay@talktalk.net
2. Professor Dr. Sarosh H. Lodi
Dean, Faculty of Civil Engineering and Architecture
NED University of Engineering & Technology Karachi, Pakistan
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3. Professor Dr. Noor Ahmed Memon
Dean, Faculty of Technology and Chairman, Department of Civil Engineering
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