



Structural Material Research Group (SMaRG)



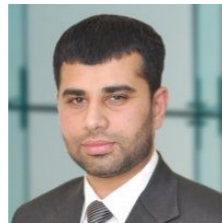
GROUP INTRODUCTION

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 Seismic-Resistant Housing (Natural Fibre Concrete) from University of Auckland, New Zealand in 2013. He did his bachelors with Gold Medal and Masters with first position in structures 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 includes 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 Convener 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

1. Engr. Aaron Josha Das (PhD)
2. Engr. Ali Rehman (PhD)
3. Engr. Safeer Ullah (PhD)
4. Engr. Mehran Khan (PhD DUT China, Co-Supervision)
5. Engr. Sohail Afzal (MS)
6. Engr. Junaid Farooq (MS)
7. Engr. Hammad Bashir (MS)
8. Engr. Khurram Shahzad (MS)
9. Engr. M Sajid Aslam (MS)
10. Engr. M Sardar Junaid (MS)
11. Engr. M Izhar (MS)
12. Engr. M Awais (MS)

NOTABLE MS/PhD ALUMNI

[Engr. M. Usman Farooqi](#)

PhD Thesis Title: Potential utilization of Wheat Straw in Concrete for Pavement Applications from Engineering Perspectives
Year: 2020

[Mr. Furqan Qamar](#)

PhD Thesis Title: Utilisation of Natural Fibrous Plaster for out-of-plane Lateral Resistance of Masonry Walling
Year: 2020

[Mr. Shehryar 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 Shake Table
Year: 2019

[Mr. Tasaddaq Hussain](#)

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

[Mr. Asad Zia](#)

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

1. Engr. Prof. Dr. Majid Ali
2. Engr. Dr. M. Usman Farooqi
3. Engr. Faiza Khalid
4. Engr. Sana Gul
5. Engr. Aaron Josha Das
6. Engr. Ali Rehman
7. Engr. Safeer Ullah

SELECTED PUBLICATIONS

Journal Publications

- S. Ahmed, and M. Ali, "Use of agriculture waste as short discrete fibers and glass-fiber-reinforced-polymer rebars in concrete walls for enhancing impact resistance," *Journal of Cleaner Production*, vol. May, p. 122211, 2020, (I.F: 7.246).
- M. Khan, M. Cao, and M. Ali, "Cracking behaviour and constitutive modelling of hybrid fibre reinforced concrete," *Journal of Building Engineering*, vol. 30, p. 101272, 2020, (I.F: 3.379).
- 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. 118382, 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. 234, p. 117387, 2019, (I.F: 4.419).
- M. U. Farooqi 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. 572-583, 2019, (4.419).
- F. Qamar, T. Thomas, and M. Ali, "Assessment of mechanical properties of fibrous mortar and interlocking soil stabilised block ISSB) for low-cost masonry housing," *Materiales de Construction*, vol. 69, no. 336, p. 201, 2019, (I.F: 1.456).
- T. Hussain and M. Ali, "Improving the impact resistance and dynamic properties of jute fiber reinforced concrete for rebars design by considering tension zone of FRC," *Construction and Building Materials*, vol. 213, pp. 592-607, 2019, (I.F: 4.419).
- M. U. Farooqi 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. Sudheer and M. Ali, "Behavior of interlocking plastic-block wall with opening under harmonic loading using locally developed shake tables," in *11th International Civil Engineering Conference (ICEC2020) Integrating Innovation and Sustainability in Civil Engineering, NED-UET / IEP Karachi, Pakistan*, vol. 11, 2020.
- M. U. Farooqi 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 SCMT5169, 2019.
- M. Ali, "Awareness of preparedness in institutional buildings of developing countries for a disaster," *Annual Australian Earthquake Engineering Society Conference, Perth, Australia*, November 16-18, 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.