Prof. Dr. Muhammad Owais Raza Siddiqui

HEC Approved Ph.D. Supervisor
Department of Textile Engineering,
NED University of Engineering & Technology, Karachi
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ResearchGate
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Objective

To obtain challenging position with proven abilities with an organization offering opportunity for rapid advancement utilizing my professional qualifications and experience for mutual advantage.

Education

2012-2015

PhD 'Geometrical Modelling and Numerical Analysis of Thermal Behaviour of Textile Structures'

School of Textile & Design, Heriot Watt University, UK.
Supervisor: Dr. Danmei Sun

2008-2009

Masters of Textile Engineering

NED University of Engineering & Technology, Karachi

2004-2007

Bachelor of Textile Engineering

NED University of Engineering & Technology, Karachi

- Second Position

Work Experience

Oct 2025 to date

*Working as **Professor** in the Department of Textile Engineering, NED University of Engineering & Technology, Karachi, Pakistan*

Teaching at Postgraduate Level:

- Design of Experiments ***(PhD)***
- Response Surface Methodology ***(PhD)***
- Advanced Finite Element Analysis ***(PhD)***
- Advanced Probability & Statistics ***(PhD)***
- Thermal Analysis of Composites ***(PhD)***
- Project Management & Framework Tools ***(MEM/MS)***
- Total Quality Management (TQM) ***(MEM/MS)***
- Operations Research ***(MEM/MS)***
- Garment Manufacturing Fundamentals ***(PGD)***
- Computer Aided Pattern Design and Product Development ***(PGD)***
- Garment Quality Management ***(PGD)***
- Project Management Tools (Primavera and Agile) ***(PGD)***
- Project Management Framework & Environment ***(PGD)***
- Supervised ***PhD & ISP***

Teaching at Undergraduate Level:

- Transport Phenomena ***(Final Year)***
- Technical Textiles ***(Final Year)***
- Heat Transfer ***(Third Year)***
- Quality control in Textiles ***(Third Year)***
- Fluid Mechanics for Textiles ***(Second Year)***
- Introduction to Textile Engineering ***(First Year)***
- Yarn Production Process ***(First Year)***
- Thermodynamic ***(First Year)***
- Engineering Mechanics ***(First Year)***

Other Responsibilities Include:

- Area Coordinator
- Member of Technical and Organizing Committee, NED International Textile Conference
- Final Year Project Advisor
- Class Advisor
- Project Review Committee Coordinator

August 2020 –Oct 2025

Associate professor, *Department of Textile Engineering, NED University of Engineering & Technology, Karachi, Pakistan*

Nov 2015-August 2020

Assistant professor, *Department of Textile Engineering, NED University of Engineering & Technology, Karachi, Pakistan*

Teaching at Postgraduate Level:

- Project Management & Framework Tools
- Total Quality Management (TQM)
- Operations Research

Teaching at Undergraduate Level:

- Transport Phenomena (Final Year)
- Technical Textiles (Final Year)
- Heat Transfer (Third Year)
- Quality control in textiles (Third Year)
- Fluid Mechanics for Textiles (Second Year
- Introduction to Textile Engineering (First Year)
- Yarn Production Process (First Year)
- Thermodynamic (First Year)
- Engineering Mechanics (First Year)
- Basic Mechanical Engineering (First Year)

Other Responsibilities Include:

- Member of Technical and Organizing Committee, NED International Textile Conference
- Final Year Project Advisor
- Class Advisor
- Project Committee Member

Feb 2018- July 2018

Visiting Professor*, Tiangong University, People's Republic of* ***China*** *(formerly known as* ***Tianjin Polytechnic University****)*

- *Teaching at Postgraduate Level*
- *Teaching at Undergraduate Level*
- *Collective research*

Jan 2008- Nov 2015

Lecturer*, Department of Textile Engineering, NED University of Engineering & Technology, Karachi, Pakistan*

Teaching at Undergraduate Level:

- Quality control in textiles (Third Year)
- Transport Phenomena (Final Year)
- Introduction to Textile Engineering (First Year)
- Thermodynamic (First Year)
- Engineering Mechanics (First Year)
- Dyestuff Engineering (Second Year)

Other Responsibilities Include:

- Project Committee Member
- Final Year Project Advisor
- Class Advisor
- In-charge of Yarn Manufacturing and Weaving Lab

Research

I conducted research on textile thermal properties and software development for computational analysis during my PhD. After the completion of my PhD in 2015; I am working as an Associate Professor in the Department of Textile Engineering, NED University of Engineering & Technology. Current research interests lie in the areas of Nano Fiber production, Finite Element Method (FEM), Computational Fluid Dynamics (CFD), Multiscale modelling & Simulation, FSI, Image Analysis, 3D Reconstruction & Software Development.

Publications

Book Chapters

1. Sun D, Fazal MZ, **Siddiqui MOR,** *Application of Functional Nanotextiles in Military and Defence*, Functional nanotextiles: processing, properties, and applications, 2025, Elsevier **(*Accepted/In press*).**
2. Sun D, Ahmed M, **Siddiqui MOR,** Iqbal K, *Nanotechnology in Smart Textiles*, Nanotechnology in Textile Finishing: Advancements and Applications (Materials Horizons: From Nature to Nanomaterials), Bairagi S, Ahmed S, Ali SW (Eds.), 2024, p.9441-459, Springer Nature Singapore. DOI: 10.1007/978-981-97-2696-7_1.
3. Sun D, Lebedytė M, **Siddiqui MOR,** *Mechanical processing of wool for improved property and functionality*, The Wool Handbook: Morphology, Structure, Property and Application, S. Jose, S. Thomas, G. Basu (Eds.), 2024, p.123-137, Woodhead Publishing, Elsevier. DOI: 10.1016/B978-0-323-99598-6.00018-9.
4. Husain MD, Farooq S, **Siddiqui MOR,** Kahn DR, *Textile Dynamics in Pakistan: Unraveling the Threads of Production, Consumption, and Global Competitiveness*, Consumption and Production in the Textile and Garment Industry. SDGs and Textiles, Sadhna, K. R. et al., 2024, p.99-115, Springer. DOI: 10.1007/978-981-97-6577-5_3.
5. Thakker AM, Sun D, **Siddiqui MOR,** *Inkjet Printing of Textiles Enhanced by Sustainable Plasma Technology*, Digital Textile Printing: Science, Technology and Markets, H. Wang, & H. Memon (Eds.), 2023, p.137-155, Woodhead Publishing, Elsevier. DOI: 10.1016/B978-0-443-15414-0.00002-9.
6. Sun D**,** Iqbal K, **Siddiqui MOR,** *Thermal analysis of temperature responsive fibrous materials*, Thermal analysis of textiles and fibers, Michael Jaffe, Joseph D. Menczel, 2020, p.335-353, Woodhead Publishing, Elsevier. DOI: 10.1016/B978-0-08-100572-9.00020-3.
7. Sun D**, Siddiqui MOR,** Iqbal K, *Specialty Testing Techniques for Smart Textiles*, Smart Textile Coatings and Laminates, Smith, W.C., 2nd Edition, 2019, p.99-115, Woodhead Publishing, Elsevier. DOI: 10.1016/B978-0-08-102428-7.00004-3.

Journals

1. Ali M, **Siddiqui MOR,** et al., *Evaluation of Conductive Threads and Stitch Configurations for Heated E-Textile Applications*, Journal of Industrial Textiles, 2025. 25: p.1-15. DOI: 10.1177/15280837251359799.
2. Ali H, Farooq S, **Siddiqui MOR,** Husain D, Faisal S, *Prediction of functional characteristics of interock and rib knitted fabrics by the use of 3D computational modelling and analysis*, Hemijska Industrija, 2025. 79(3): p.167-178. DOI: 10.2298/HEMIND240619012A.

3. **Siddiqui MOR**, et al., *Unravelling the Complexity: A Review of Geometrical Modelling Techniques in Plain Weft Knitted Textile Structures*, Tekstil ve Mühendis, 2025. 32(138): p.210-219. DOI: 10.7216/teksmuh.1506139.
4. **Siddiqui MOR,** Farooq S, Ali H, Husain D, Faisal S, *Evaluating the effect of structural and parametric change of weft knitted Polyester fabrics over the performance of Sportswear*, Mehran University Research Journal of Engineering & Technology, 2025. 44(2): p.174-181. DOI: 10.22581/muet1982.3362.
5. Farooq S, Faisal S, Bibi H, **Siddiqui MOR**, Jawad SM, *Optimization and validation of Heat Setting Process of Cationic Dyeable Polyester knitted fabric using Box-Behnken Design,* Pigment & Resin Technology, 2025. P.1-9. DOI: 10.1108/PRT-09-2024-0099.
6. Farooq S, Aamir A**,** Faisal S, Husain D, **Siddiqui MOR**, *Durable Multifunction finishing on Polyester knitted fabric by applying ZnO nanoparticles,* Pigment & Resin Technology, 2025. DOI: 10.1108/PRT-08-2024-0086.
7. Rehman T, Safdar F, **Siddiqui MOR**, et al., *Achieving Closed-Loop Circularity: Recrafting Waste Socks into New Socks via Knitwear Fabrication Techniques*, Journal of Material Cycles and Waste Management (JMCW), 2025（***under review)***.
8. Younas MU, Safdar F, **Siddiqui MOR**, et al., *A sustainable approach for dyeing silk fabric using dye and mordant extractions from natural resources*, Sustainable Chemistry and Pharmacy, 2025 **(*under review)***.
9. **Siddiqui MOR,** et al., *Development of Application to determine the air permeability of weft knitted structure*, Hemijska Industrija,（***under review)***.
10. Ali S, Beg T., Farrukh M, **Siddiqui MOR,** Sun D, *Enhancement of Hot Mix Asphalt (HM) properties using waste polypropylene*, Environmental Engineering and Management Journal, 2024. 23(12): p.2405-2414. DOI: 10.30638/eemj.2024.193.
11. Ali S, **Siddiqui MOR,** Ali H., *Performance evaluation of flexible pavement using Polyethylene Terephthalate (PET)*, Mehran University Research Journal of Engineering & Technology, 2024. 43(3): p.126-135. DOI: 10.22581/muet1982.3140.
12. **Siddiqui MOR**, Farooq S, Husain D, Faisal S, *Prediction of air permeability and effective thermal conductivity of multifilament polyester yarn by finite element analysis,* Polimery, 2023. 68(1): p.6-18. DOI: 10.14314/polimery.2023.1.2.
13. Iqbal K, Abid HA, **Siddiqui MOR,** et al., *Dyeing of wool fabric with natural dye extracted from Dalbergia Sissoo Using Natural Mordants*, Sustainable Chemistry and Pharmacy, 2023. 33: p.101094. DOI: 10.1016/j.scp.2023.101094.
14. Iqbal W, Jiang Y, Yi-Xong Q, **Siddiqui MOR,** et al., A*ntimicrobial property of functional viscose fiber by using mint extract,* Industria Textila, 2023. 74(4): p.464-469. DOI: 10.35530/IT.074.04.202239.
15. Ali S, **Siddiqui MOR**, et al., *Class C fly ash as a substitute for mineral fillers in asphalt mixtures*, Polimery, 2022. 67(9): p.438-449. DOI: 10.14314/polimery.2022.9.5.
16. Ali M, **Siddiqui MOR,** Zubair M, *A study of the functionality of conventional pigmented inks in furnishing electrical conductivity to textiles,* Industria Textila, 2022.73(6): p.602-606. DOI: 10.35530/IT.073.06.202159.
17. Siddique SH, **Siddiqui MOR,** Ali M, Sun D, *Characterization of hybrid composites based on textile hard waste to be used as sunshade,* Industria Textila, 2022. 73(6): p.680-686. DOI: 10.35530/IT.073.06.202158.
18. Beg T, **Siddiqui MOR,** Aslam Bhutto, Sun D, *Utilization of textile denim sludge waste in high load-bearing structural applications*, Polimery, 2022. 67(7-8): p.298-307. DOI: 10.14314/polimery.2022.7.2
19. Ali S, **Siddiqui MOR,** et al., *Performance evaluation of hot mix asphalt using textile waste*, Industria Textila Journal, 2022. 73(3): p.225-232. DOI: 10.35530/IT.073.03.202144.

20. Iqbal K, Rehman, **Siddiqui MOR,** et al., *An investigation into the fastness and mechanical properties of p-aramid fabric dyed with disperse dye*, Color Research and Application, 2022. 47(2): p.416-423. DOI:10.1002/col.22729.
21. **Siddiqui MOR,** Baloch Z, et al.**,** M*odeling method to evaluate the thermo-regulating behavior of micro-encapsulated PCMS coated fabric*, Industria Textila Journal, 2022. 73(1): p.3-11. DOI: 10.35530/IT.073.01.202143.
22. Husain D, Naqvi S, **Siddiqui MOR,** Kennon R, *Steady state mathematical model of Test-Rig for the validation of experimental Temperature-Resistance relationship of Temperature Sensing Fabric*, Mehran University Research Journal of Engineering & Technology, 2022. 14(1): p. 23-32. DOI: 10.22581/muet1982.2201.03.
23. **Siddiqui MOR,** Noor I, Hussain D, et al.**,** *Productivity improvement in denim industry by DMAIC methodology*, International Journal of Innovation, Creativity and Change, 2021. 15(3): p.217-229.
24. Waqar Iqbal, Yaming Jiang, **Siddiqui MOR,** et al.**,** *The measurement of dynamic tension fluctuation in a flat knitting machine*, International Journal of Innovation, Creativity and Change, 2021. 15(6): p. 900-911.
25. **Siddiqui MOR,** Ali M, Zubair M, Sun D**,** *Prediction of air permeability of knitted fabric by using computational method*, Tekstil ve Konfeksiyon, 2018. 28(4): p.273-279. DOI: 10.32710/tekstilvekonfeksiyon.482877.
26. **Siddiqui MOR,** Sun D**,** *Development of experimental setup for measuring the thermal conductivity of textiles*, Clothing and Textile Research Journal, 2018. 36(3): p.215-230. DOI: 10.1177/0887302X18768041.
27. **Siddiqui MOR,** Sun D, *Geometrical modelling and heat transfer analysis of nonwoven fabrics*, Journal of Industrial Textiles, 2018. 48(2): p.405-431. DOI: 10.1177/1528083717725913.
28. **Siddiqui MOR,** Sun D, *Thermal analysis of conventional and performance plain wove fabrics by finite element method*, Journal of Industrial Textiles, 2018. 48(4): p.685-712. DOI: 10.1177/1528083717736104.
29. **Siddiqui MOR,** Sun D**,** *Development of plug-ins to predict effective thermal conductivity of woven and microencapsulated phase change composite*. Journal of Composite Materials, 2017. 51(6): p733–743. DOI: 10.1177/0021998314545193.
30. **Siddiqui MOR,** Sun D**,** *Conjugate Heat Transfer Analysis of Knitted Fabric.* Journal of Thermal Analysis and Calorimetry, 2017. 129(1): p.209-219. DOI: 10.1007/s10973-017-6166-y.
31. **Siddiqui MOR,** Sun D, *Prediction of thermal conductivity of woven fabric using finite element method*, Science International, 2016. 28(4): p. 4079-4981.
32. **Siddiqui MOR,** Sun D**,** *Automated model generation of knitted fabric for thermal conductivity prediction using finite element analysis and its applications in composites*, Journal of industrial textiles, 2016. 45(5): p.1038–1061. DOI: 10.1177/1528083714551440.
33. **Siddiqui MOR,** Sun D, *Porosity prediction of plain weft knitted fabrics*, fibers, 2015. 3: p.1-11. DOI: 10.3390/fib3010001.
34. **Siddiqui MOR,** Sun D**,** *Computational analysis of effective thermal conductivity of microencapsulated phase change material coated composite fabrics.* Journal of Composite Materials, 2015. 49(19): p. 2337-2348. DOI: 10.1177/0021998314545193.
35. **Siddiqui MOR,** Sun D**,** *Finite element analysis of thermal conductivity and thermal resistance behaviour of woven fabric*, Computational Materials Science, 2013. 75: p.45-51. DOI: 10.1016/j.commatsci.2013.04.003.

International Conferences

1. **Siddiqui MOR**, *Computational analysis of plain weft knitted fabrics for the study of air permeability and thermal conductivity,* ***4th*** International Conference on Knowledge based Textile (KnowTex), NTU, Pakistan, 19-20-Feb, 2025. ISBN: 978-969-7549-17-7.

2. **Siddiqui MOR,** et al., *An Investigation on Shade Depth for the Dyeing of Poly Isophthaloyl Meta-Phenylene Diamine with Cationic Dye**, 4th*** International Conference on Knowledge based Textile (KnowTex), NTU, Pakistan, 19-20-Feb, 2025. ISBN: 978-969-7549-17-7.
3. **Siddiqui MOR,** et al., *Development and analysis of 3D computational model of multifilament polyester yarn and weft knitted fabrics to predict comfort properties of sportswear***,** 3rd International Conference on Knowledge based Textile (KnowTex), NTU, Pakistan, 05-06-Mar, 2024. ISBN: 978-969-7549-16-0.
4. **Siddiqui MOR,** et al., *Investigation of the Heat Setting and Dyeing Processes of Cationic Dyeable Polyester Knitted Fabric***,** 3rd International Conference on Knowledge based Textile (KnowTex), NTU, Pakistan, 05-06-Mar, 2024. ISBN: 978-969-7549-16-0.
5. **Siddiqui MOR,** et al., *Elevating Pakistani textiles through manmade transformation for global export***,** 3rd International Conference on Knowledge based Textile (KnowTex), NTU, Pakistan, 05-06-Mar, 2024. ISBN: 978-969-7549-16-0**.**
6. **Siddiqui MOR,** et al., *Approach towards development of functional sportswear fabrics**, 2nd*** International Conference on Knowledge based Textile (KnowTex), NTU, Pakistan, 14-15-Feb, 2023. ISBN: 978-969-7549-14-6**.**
7. **Siddiqui MOR,** et al., *Transformation to manmade fibers-based textiles***,** 1st Conference on Knowledge Based Textiles (KnowTex), NTU, Pakistan, 28-Feb to 02-Mar, 2022.
8. **Siddiqui MOR**, *Development of High-Performance Sportswear Fabrics by Computational Model***,** 1st Conference on Knowledge Based Textiles (KnowTex), NTU, Pakistan, 28-Feb to 02-Mar, 2022.
9. **Siddiqui MOR**, Sun D**,** *Thermal behaviour of textile structures by computational method***,** The Second International Forum on Textiles for Graduate Students, China, Sep 08-11, 2018.
10. Sun D**,** Kashif Iqbal, **Siddiqui MOR,** *Textiles incorporated with PCMs for temperature regulated garments, 91st Textile Institute World Conference*, UK, July 23-26, 2018.
11. **Siddiqui MOR,** Sun D, *Computational heat transfer analysis of textile structures*, 2nd NED International textile conference, Karachi, Pakistan, Feb 17-18, 2016.
12. **Siddiqui MOR,** Sun D**,** *Heat transfer analysis of thermo-regulated composite fabrics by using finite element method*, SIMULIA UK Regional User Meeting, November 3-4, 2015.
13. **Siddiqui MOR,** Sun D**,** *Investigation of thermal property of textile fabric*, 10th Annual Postgraduate Conference, June 10, 2015.
14. **Siddiqui MOR,** Sun D, *Prediction of effective thermal conductivity of micro-encapsulated phase change composites*, 15th Autex world textile conference, Bucharest, Romania, Accepted June 10-12, 2015.
15. **Siddiqui MOR**, Sun D**,** *Heat transfer analysis of textile fabric by finite element method***,** Simulia community conference, 20-22 May, 2014.
16. **Siddiqui** MOR, Sun D**,** *Prediction of thermal conductivity of woven fabric using finite element method*, proceedings of 14th Autex world textile conference, Bursa Turkey, 26-28 May, 2014.
17. **Siddiqui MOR**, *Design modification of main nozzle of air jet loom to minimize the air consumption by using solid modelling and computational fluid dynamics*, 1st international Conference on value addition and Innovation in Textiles COVITEX Proceedings, 2011, p. 145-149.

Honours, Grants and Awards

Grants

- ***Received*** PSF T-Helix Research Grant of **6.*84633 million*** (2021-2023).
- ***Secured PKR 21.5 million*** Funding as ***Principal Investigator*** through various Research Projects (2016-2021) and ***PKR 14.5 million*** as a ***Team Member*** of GCF Project (2021)
- ***Received*** 5thDICE Shark Research Grant of ***0.26 million*** (2020-2021).
- ***Received*** HEC Start-Up Research Grant of ***0.485 million*** (2016-2017).

Honours

- ***Conducted advanced training*** on Thermal Resistance of Textiles at ***Inspectorate of Army Stores & Clothing (Army Quality Control Labs. 2020)***
- ***Received*** travel grant from ***Tianjin Polytechnic University*** to present paper in "The Second International Forum on Textiles for Graduate Students from (Sep. 8 to Sep. 11, 2018).
- ***Taught one semester*** at ***Tianjin Polytechnic University*** under Faculty Exchange Program (25-02-2018 to 31-07-2018).
- ***Post Graduate Student Representative*** of School of Textiles & Design, Heriot Watt University, Scottish Border Campus, UK (***Elected Member)*** 2013-2015.
- ***HEC Approved*** Ph.D. Supervisor.

Awards

- ***Best Final Year Projects 2025*** *(Development of Plug-in to Determine the Air Permeability of Weft Knitted Structure).*
- ***Received 3rd*** *position in the globally recognized Herman and Myrtle Goldstein Graduate Student Paper Competition. The event took place at AATCC's headquarters in Raleigh, North Carolina, USA (2024).*
- ***Received 3rd Prize out of 35 Projects*** displayed in NTU-Interloop Textile Innovation Awards (2024).
- ***Best Final Year Projects 2024*** *(Experimental Investigation and Numerical Modelling of Sensing Behavior of Single Jersey Knitted Strain Sensors).*
- ***Best Final Year Projects 2023*** *(Parametric Computational Analysis of Plain Weft Knitted Fabric for the Study of Air Permeability and Thermal Conductivity).*
- ***Awarded Best Research Publication Award*** by NED Alumni Association of Southern California (2022).
- ***Awarded Best Researcher Award*** by NED University of Engineering & Technology (2022).
- ***Best Final Year Projects 2020*** *(Development of Electrospinning Device).*
- ***Awarded Best Research Publication Award*** by NED Alumni Association of Southern California (2018).
- ***Awarded Best Teacher Award*** by NED Alumni Association of Southern California (2017).
- ***Awarded Best Research Publication Award*** by NED Alumni Association of Southern California (2017).
- ***Awarded Best Research Publication Award*** by NED Alumni Association of Southern California (2016).
- ***Received Rieter Award 2008***.
- ***2nd Position*** *in Bachelor of Engineering*

Editorial Board Member

- Member of NCRC in the discipline of Textile Engineering Technology
- Scientific and Technical Committee & Editorial Review Board on Materials and Metallurgical Engineering WASET

International Journal Reviewer

- Textile Research Journal
- Journal of Natural Fibers
- Journal of Industrial Textiles
- Journal of Composite Materials
- Journal of Thermoplastic Composite Materials.
- Journal of Fashion Technology & Textile Engineering
- AATCC Journal of Research
- International Journal of Heat and Mass Transfer
- Surface Topography: Metrology and Properties

- Journal of Thermal Analysis and Calorimetry
- Materials Research Express
- Drying Technology
- Research Journal of Textile and Apparel
- Journal of Industria Textila
- Mechanics of Advanced Materials and Structures
- Journal of Process Mechanical Engineering

Professional Memberships

- Member of International Association of Engineers (IAENG).
- Member of World Academy of Science, Engineering and Technology (WASET).
- Member of World Association of Young Scientists.
- Member of European Scientific Association for Material Forming (ESAFORM).
- Member of Innovation in Textiles.
- Member NEDAN, Pakistan.
- Lifetime member of PEC, Pakistan.
- Member of the Institution of Engineers Pakistan.