Curriculum Vitae

Name: **Dr. Muhammad Sohail**
Designation: Professor,
Department of Materials Engineering,
NED University of Engineering and Technology,
Karachi, Pakistan
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Education

Aug. 2010~June 2015: Division of Mechanical Engineering, KAIST, South Korea.

Ph. D (Mechanical), Advanced Laser, Plasma and Hybrid Application Lab., Advisor Prof. Suck Joo,Na

Jan. 2007-Aug. 2009: Department of Materials Engineering, NEDUET, Pakistan. *Master of Engineering (ME)*

Dec. 2001-Feb. 2006: Department of Industrial and Manufacturing Engineering, NEDUET, Pakistan. *Bachelor of Engineering*

Career

Jan 2022- present: Professor Department of Materials Engineering, NEDUET, Pakistan

Aug 2020- Jan 2022 : Associate Professor Department of Materials Engineering, NEDUET, Pakistan

May 2010 – Aug 2020 : Assistant Professor Department of Materials Engineering, NEDUET, Pakistan

Jun. 2008 - May 2010: Lecturer Department of Materials Engineering, NEDUET, Pakistan

Mar. 2007 – Jun. 2008 : Research Assistant to Dr. Fakhir Hasanai, CMD NEDUET.

Worked on HEC project "Numerical study of Finned tube annulus in longitudinal flow"

Dec.2006- Mar. 2007: Design Engineer in Ahmed Engineering Works

Major work include designing of Tools for Automotive Parts

June 2006-Nov. 2006: Assistant Engineer in Taha Engineering Limited.

Worked on Modeling and Interference analysis of Yamaha Engine's Gear Transmission

Honors and Awards of Dr. Muhammad Sohail

- Received Fully Funded Ph. D. Scholarship from Korea Advanced Institute of Science and Technology (KAIST) , South Korea
- Received scholarship amounting to Rs. 5 Million from NED UET
- Member Organizing Committee of 1st Advanced Materials and Process Engineering (AMPE) Conference 2015
- Member Organizing Committee of 2nd AMPE Conference 2017
- Co-Editor of Proceedings of 2nd AMPE Conference 2017
- Member Organizing committee of 3rd AMPE Conference 2019
- Member National Curriculum Review Committee (NCRC) 2017
- Member Board of Studies of Materials and Metallurgical Engineering, NEDUET
- Member Board of Faculties of Faculty of Chemical and Process Engineering
- M. Engineering Coordinator for ME in Materials Engineering
- Member of Outcome Based Education (OBE) accreditation committee for Accreditation of Bachelor of Engineering in Materials Engineering

- Awarded Best Research Publication Award by NED Alumni Association of Southern California(NEDAASC) for 2018
- Final Year Design Project on 'Development of Impact Resistance Sheet using Natural and Synthetic Fibers' was selected for Funding by NEDAASC in 2019 (Amount 100,000/-Rs)
- Member Sub-Committee to propose a uniform OBE framework for all engineering undergraduate programmes at NED University of Engineering and Technology
- Member of Central OBE Committee of NED University of Engineering and Technology
- **Awarded 18.67 Million Pakistani Rupees for the project "Design and Development of Thermal Assisted Friction Stir Welding' under National Research Program for Universities (NRPU) in 2022 as Principal Investigator**
- **Successfully Completed NRPU of 5.3 Million Pakistani Rupees for the project "Design and Development of reference electrode for electrochemical experiments' under National Research Program for Universities (NRPU) in 2025 as Co. Principal Investigator**

Management Experience

Masters coordinator. Co-Chair (Department of Materials Engineering), Member Senate, Member Board of Faculty, Member board of studies, Class advisor, Member Central Outcome Based Education committee

Teaching

Subjects taught include, Mechanics of Materials, Deformation behavior of Materials, Joining of Materials, Total Quality Management, Deformation Behavior and Failure Analysis of Materials, Production Management and Quality assurance, etc.

Research Activities.

Journal Papers

1. **Sohail M**, Han S-W, Na S-J, Gumenyuk A, Rethmeier M (2014) Characteristics of weld pool behavior in laser welding with various power inputs. Welding in the World 58 (3):269-277. doi:10.1007/s40194-014-0112-4
2. **Sohail M**, Han S-W, Na S-J, Gumenyuk A, Rethmeier M (2015) Numerical investigation of energy input characteristics for high-power fiber laser welding at different positions. The International Journal of Advanced Manufacturing Technology. doi:10.1007/s00170-015-7066-6
3. **Muhammad Sohail**, Miikka, K., Suck-Joo, N., Sang-Woo, H., Veli, K., 2017. Effect of leading and trailing torch configuration on mixing and fluid behavior of laser-gas metal arc hybrid welding. Journal of Laser Applications 29, 042009.: DOI; 10.2351/1.5008304
4. **Muhammad Sohail**, Sang Woo H., Suck-Joo, Na,Andrey G. ,Rethmeir M., 2018. A study on the role of recondensation flux in high power laser welding by Computational Fluid Dynamics Simulations, Journal of Laser Applications 30 (1):012013. DOI; 10.2351/1.4994246
5. Muhammad Yasir Khan, Ali Dad Chandio, **Muhammad Sohail**, Muhammad Arsalan, Muhammad Wasim Akhtar, Syed Zeeshan Abbas, Zeeshan Akhtar ,"Low Temperature Synthesis of Anatase TiO_2 Nanoparticles and its Application in Nanocrystalline Thin Films", Page 86-90, Key Engineering Materials ***[Scopus Indexed: ISSN web 1662-9795]***
6. Muhammad Yasir Khan, Ali Dad Chandio, **Muhammad Sohail**, Syed Zeeshan Abbas, Rao Shakeel Ahmed, Shahid Bhutto, Syed Junaid Mehmood , "Removal of Heavy Metals (Lead, Cadmium and Iron) from Low-Grade Nanoscale Zinc Oxide Using Ammonium Carbonate Solution as a Leaching Agent", Page 132-136, VOL 778, Key Engineering Materials ***[Scopus Indexed: ISSN web 1662-9795]***

7. **Muhammad Sohail**, A. D. Chandio, Fayyaz Hussain, Maryam Sheikh, "High-Temperature Effectiveness of Ginger Extract as Green Inhibitor for Corrosion in Mild Steel", Vol 11, No 1 (2018), NUST Journal of Engineering Sciences
8. Muhammad Ali Siddiqui , Fayaz Hussain , **M Sohail Hanif** , Ahmad Azmin Mohamad , Muhammad Tufail, "Effect of Calcination and Sintering Temperatures on Physical Properties of Barium Titanate Ceramic", Vol. 6,Issuer 4, December(2018), page 42-47, International Journal of Electroactive Materials
9. Danial Ahmad, **Muhammad Sohail**, Fayaz Hussain, Humair Siddiqui, and Muhammad Yasir " Effect of pH and Conductivity of Electrolyte on the Synthesis of Cuprous Oxide Nano Cubes and Platelets Using Both Electrodes of Copper", Vol. 38, No. 2, 415-420 April 2019 , Mehran Univeristy of Engineering and Technology Research Journal
10. Shahid Hussain Abro, **Muhammad Sohail**, Fayaz Hussain, "On the Effect of γ-phase transformation kinetics upon microstructure response of Cold Heading Quality Steel, NUST Journal of Engineering Sciences, Vol. 11, No.2, page 51-55, 2018
11. Sarah Faheem, **Muhammad Sohail**, Fayaz Hussain, Muhammad Maaz, Bilal Abbas, "Synthesis and Characterization of Chitosan and Graphene Oxide to form a Nano-Composite Hydrogel for the removal of heavy metal ions", Journal of Water Chemistry and Technology, 2021, Vol. 43, No. 1, pp. 22–28, Springer
12. **Sohail Muhammad**, Humair Ahmed Siddiqui , Ishaque Abro, Adil Usmani and Amjad Malik , "Bacillus Subtilis as Self-Healing Agent in Cement Mortar: The Effect of Curing time and amount of Calcium Lactate on strength", Vol. 40, No. 4, 889 - 897, October 2021**,** Mehran Univeristy of Engineering and Technology Research Journal
13. **Sohail Muhammad**, Humair Ahmed Siddiqui , Ishaque Abro, Adil Usmani and Amjad Malik, "Bacillus Subtilis as Self-Healing Agent in Cement Mortar: Combined and the Separate Effect of Bacteria and Calcium Lactate on Self-Healing Behavior in Cement Mortar, **Mehran University Research Journal of Engineering and Technology**, [S.l.], v. 40, n. 2, p. 426 - 434, mar. 2021. ISSN 2413-7219.
14. Fayaz Hussain, **Muhammad Sohail** , Moiz Ullah Baig , Saad Arif , M. Daniyal Ahmed, "Fabrication of Ultrathin Graphene Oxide Membrane for water purification using Inkjet printing", Journal of Space Technology, July 15, 2019, **ISSN 2077-3099 (Print); ISSN 2411-5029 (Online)**
15. Rizwan, Yousuf, **Muhammad Sohail**, Bashir, Alias, Hamdi, and Basirun, , Synthesis, Characterization, and In Vitro Biochemical Analysis of Hydroxyapatite–Bioglass Composite Scaffolds for Bone Tissue Repair, Journal of Materials, Vol. 72, No. 10, 2020 https://doi.org/10.1007/s11837-020-04289-z ,2020 The Minerals, Metals & Materials Society
16. Shahid Hussain Abro*, Fayaz Hussain, **Muhammad Sohail**, Danial Tariq, Kamran Jawed, and Rana Sanwal, Development and Synthesis of Composite Electrode (rGO/G/PANI) for Capacitor from Burnout Battery Powder, Proceedings of the Pakistan Academy of Sciences: A. Physical and Computational Sciences: 57 (1): 31-36 (2020) *ISSN: 2518-4245 (print), 2518-4253 (online)*

17. Shahid Hussain Abro, Hazim Moria, **Sohail Muhammad** and Hamza Suharwardi, Microstructure Integration Upon Heating Temperatures in Low Carbon Mn Steel, Submitted to Journal of Engineering and Applied Sciences, Volume 39, Issue 2, Page 164-169, December 2020
18. Muhammad Rizwan, Ali Dad Chandio, **Muhammad Sohail**, M. Nasir Bashir, Sumra Yousuf, Rodianah Alias, Hammad ur Rehman, M. Hamdi, Wan Jeffrey Basirun, "Bioglass-fiber reinforced Hydroxyapatite composites synthesized using spark plasma sintering for bone tissue engineering", Processing and Application of Ceramics 15 [3], (2021) 270–278
19. **Muhammad Sohail**, Usama Athar, Hamna Siddiqui, Arsal Sohail1, Aasd Raza, Moiz Sarwar, Mudassir Farooq, "Design of Experiments for Green Tire Tread Compound Development by Reducing Conventional Carbon with an Eco-Friendly Filler, Materials Science Forum, Vol. 1068, pp 71-78, ISSN: 1662-9752, 2022 Trans Tech Publications Ltd, Switzerland doi:10.4028
20. Hareem Zubairi, Areeba Essani, Doha Majeed, Fayaz Hussain, **Muhammad Sohail**," Re-engineering of Waste Products into Useful Construction Materials", Journal of Characterization, Vol 2, no 2, pp. 123-133, July 2022, ISSN: 2757-9166
21. Muhammad Shaheryar Khan, **Muhammad Sohail**, Syed Muhammad Junaid, 'Indigenous development of NBR+PVC rubber blend for aviation industry' , Balochistan Journal of Engineering & Applied Sciences (BJEAS) , Volume 4, No. 2, December 2021, pp. 86-91
22. Mudassir F., **Sohail M**., A. A. SOROUR, Corrosion of a spark plasma sintered Fe-Cr-Mo-B-C alloy in 3.5% NaCl solution, Journal of Metals, Materials and Minerals, Vol. 33 , No. 1 , pp. 27-38, 2023 JMMM Metallurgy and Materials Science Research Institute (MMRI), Chulalongkorn University. DOI: 10.55713/jmmm.v33i1.1588
23. Waqas, Maria, **Muhammad Sohail**, Sohaib Anwer, Mehdi Kazmi, and Bilal Raza. "Microstructural characterization and analysis of gray cast iron material using deep learning-based object detection and localization techniques.", International Journal of Computational Materials Science and Engineering (2025): 2540003.
24. Khan, Shaheer Ahmed, and **Muhammad Sohail**. "Characteristics of Friction Stir Welding of 3 mm thick ABS and PC thermoplastic polymers: An experimental approach." PLoS One 20, no. 5 (2025): e0322456.
25. Elahi, Rawaha Imran, **Muhammad Sohail Hanif**, Syed Ahsan Abbas Zaidi, Muhammad Taha Siddiqui, and Bilal Ahmed. "Conventional Friction Stir Welding and Bobbin Friction Stir Welding for Joining Space Grade Aluminium Alloy 6061-T6 by an Industry-compatible Way: A Comparative Study." Journal of Sustainable Materials Processing and Management 5, no. 1 (2025): 76-88.
26. Anis, A.; Shakaib, M.; **Hanif, M.S**. Statistical and Machine Learning Classification Approaches to Predicting and Controlling Peak Temperatures During Friction Stir Welding (FSW) of Al-6061-T6 Alloys. *J. Manuf. Mater. Process.* 2025, *9*, 246. https://doi.org/10.3390/jmmp9070246

Conference Papers

1. **M.Sohail**, S.M.F. Hasani, "Numerical analysis of heat transfer and fluid flow in circumferential finned tube annulus in longitudinal laminar flow" , Fourth International Conference on Mathematical Models and Methods in fluid Mechanics July 7 – 9, 2008, Islamabad, Pakistan
2. **M. Sohail**, S.M.F. Hasani, "Conjugate conduction-convection analysis of finned tube annulus in longitudinal laminar flow", Proceedings of the 4th BSME-ASME International Conference on Thermal Engineering 27-29 December, 2008, Dhaka, Bangladesh
3. M.Shakaib, S. M.F. Hasani, **M.Sohail**, "Parallel processing efficiency of computational fluid dynamics (CFD) simulations ", NAFEMS World Congress 2009, June 16 -19 , 2009 Crete, Greece

4. **M.Sohail**, A.Ali, "Grain size determination of medium carbon steel by ultrasonic velocity measurement", 11th International Symposium on Advanced Materials (ISAM-2009), 08 –12 August, 2009, Islamabad, Pakistan
5. S.W.Han, **M.Sohail**, S.-J.Na, A.Gumenyuk, M.Rethmeier, "Characteristics of weld pool behavior in laser welding with various power inputs", 65th Annual Assembly of the Institute of Welding, Denver, United States of America, 2012, July
6. W.-I.Cho**, M.Sohail**, S.-J.Na, "Modeling of Keyhole Formation in Laser and Laser Arc Hybrid Welding Based on CFD Simulations", **Sub-plenary speech**, International Congress on Applications of Lasers & Electro-Optics, Anaheim, CA, United States of America, 2012, September
7. **Sohail Muhammad**, Na Suck-Joo, Gumenyuk Andrey, Rethmeier ," Role of vapor re-condensation on bead shape in high power laser welding", LAMP 2015, May 26-29, 2015, Kitakyushu, Fukuoka, Japan
8. **Sohail Muhammad**, Na Suck-Joo, Karhu Miikka, Kujanpaa Veli, "Numerical study on effect of laser position and joint gap on full penetration Laser-GMAW-P hybrid welding" , LAMP 2015, May 26-29, 2015, Kitakyushu, Fukuoka, Japan
9. S.-J.Na, S.-W.Han, **M.Sohail**, L.Zhang, A.Gumenyuk, M.Rethmeier, M.Karhu, V.Kujanpaa, "Flow and bead formation characteristics in high power laser welding at different welding positions", Invited speech, Lasers in Manufacturing (LIM2015), Munich, Germany, 2015, June **(Invited Speech)**
10. S.-J.Na, **M.Sohail**, S.-W.Han, M.Karhu, V.Kujanpaa, "Flow and element mixing characteristics in laser GMA hybrid welding", Keynote speech, The 15th Nordic Laser Materials Processing Conference, **Lappeenranta**, Finland, 2015, August **(Invited Speech)**
11. Muhammad Sohail, Suck-Joo Na, Andrey Gumenyuk and Michael Rethmeier, 'Investigation on the effect of Laser Power and Irradiation angle on the bead formation in High power fiber laser welding', 18th international symposium on advanced materials (ISAM-2023), 2nd to 6th October, 2023 **(Invited Speech)**
12. Muhammad Sohail, Rawaha Imran, Muhammad Taha , Syed Ahsan Abbas Zaidi, Bilal Ahmed , "Comparison of Conventional Friction Stir Welding and Bobbin Friction Stir Welding for Joining of Space Grade Aluminum Alloy 6061-T6", 4th International Characterization Symposium,16-18 October, 2024, Sakarya, Turkiye
13. **Muhammad Sohail,** 'Laser welding for precision joining of jewelry, effect of laser source and beam parameters', Key note presentation, PARTASH jewelry conference, 23-24 December, 2024, Pak Austria Fachhochschule Institute of Applied Science and Technology, Haripur, Pakistan