

HAIDER ALI

Mechanical Engineering Department, NED University, Karachi, Pakistan

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HIGHLIGHTS OF QUALIFICATIONS

- 100+ publications in high-quality ISI-Index journals, including six papers in Nature Scientific Reports
- Cumulative Impact factor 280+, Citations 2100+, h-Index 25, i10-index 64
- 17 years of teaching experience, including 11 years of Post-PhD experience
- Participated in many administrative duties and as a reviewer for various international journals
- HEC Approved PhD Supervisor
- PEC Approved Program Evaluator (PEV)
- Contributed to 10+ funded research projects with multi-disciplinary teams, including two collaborative projects with MIT
- Actively participated in different engineering societies. Also, conducted some international certificate courses as a trainer

EDUCATION

Ph.D. (Mechanical Engineering)

Jan. 2015

GPA 3.97

Thesis Title: Heat Transport Characteristics in Thin Films.

King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia

Master of Engineering (Mechanical Engineering)

July 2011

GPA 3.89

NED University of Engineering and Technology, Karachi, Pakistan.

Bachelor of Engineering (Mechanical Engineering)

Dec. 2008

Secured 4th Position among 138 students (84.4%)

NED University of Engineering and Technology, Karachi, Pakistan.

EXPERIENCE

Professor (Oct 2025 to date)

Department of Mechanical Engineering

NED University, Karachi, Pakistan.

Joint Director, DIL (August 2024 to date)

NED University, Karachi, Pakistan.

Associate Professor (Feb 2022 to Oct 2025)

Department of Mechanical Engineering

NED University, Karachi, Pakistan.

Associate Professor (March 2019 to Feb 2022)

Department of Mechanical Engineering

DHA Suffa University, Karachi, Pakistan.

Head of Department (Jan. 2019 to Feb 2022)

Department of Mechanical Engineering

DHA Suffa University, Karachi, Pakistan.

Assistant Professor (Aug. 2017 to March 2019)

Department of Mechanical Engineering

DHA Suffa University, Karachi, Pakistan.

Post-Doctoral Fellow (Sept. 2015 to Aug. 2017)

Department of Mechanical Engineering
King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia.

Researcher (Feb. 2015 to August 2015)

Thermoelectric Research Group, Department of Mechanical Engineering
King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia.

Lecturer–B (Jan. 2012 to Feb. 2015)

Department of Mechanical Engineering
King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia.

Lecturer (Dec. 2008 to Jan. 2012)

Department of Bio-Medical Engineering
NED University of Engineering & Technology, Karachi, Pakistan.

COURSES TAUGHT***NED University of Engineering & Technology (Average Teaching Evaluation – 8.9 out of 10)*****Graduate Courses**

Machine Learning (MT-532), Numerical Heat Transfer (ME-550), Introduction to AI & Computer Architecture (MC-502), Research Methods in Engineering Management (EM-513)

Undergraduate Courses

Refrigeration and Air Conditioning (ME-319), AI and Internet of Things (ME-438), Mechatronics (ME-430)

DHA Suffa University (Average Teaching Evaluation – 90 out of 100)**Graduate Courses**

Solar Thermal Engineering (ME-8301), Advanced Heat and Mass Transfer (ME-7303)

Undergraduate Courses

Heat and Mass Transfer (ME-331), Thermodynamics-II (ME-232), Thermodynamics-I (ME-131), Internal Combustion Engines (ME-432)

KFUPM (Average Teaching Evaluation – 9.0 out of 10)

Thermodynamics (ME-203), Materials Science (ME-205), Thermo-fluids Laboratory (ME-315), and Materials Science Lab (ME-217).

NEDUET (Average Teaching Evaluation – 8.8 out of 10)

Introduction to Fluid Mechanics & Heat Transfer (BM-301), Transport Phenomena in Biological Systems (BM-412), Thermodynamics for Biomedical Engineers (BM-206).

ADMINISTRATIVE RESPONSIBILITIES

Deputy Chairman, NED University Admission Committee	Aug 2025 to date
Member. Curriculum Review Committee, ME Department, NED	September 2024 to date
PI, Aero Vehicle Innovation and Advancement Nexus(AVIAN)	Feb. 2024 to date
Faculty Advisor, ASHRAE NED Student Branch	December 2023 to date
Member, EHS Committee, ME Department, NED	March 2023 to date
In-charge, IMES Lab	August 2023 to date
Lead OBE Coordinator, ME Department, NED	September 2022 to date
Member, NED University Admission Committee	May 2022 to Aug 2025
Member, Departmental OBE Committee (ME Department)	March 2022 to date
President, Equivalence Committee	March 2021 to Feb 2022
Convener, OBE Planning Committee (ME Department - DSU)	January 2019 to Feb 2022
Member, OBE Steering Committee (DSU)	December 2017 to Feb 2022

Member, Steering Committee for conversion to relative grading (DSU)	December 2017 to Feb 2022
Research Coordinator (ME Department - DSU)	August 2018 to Feb 2022
Cluster Head – Thermofluids (ME Department - DSU)	August 2018 to January 2019
Convener, OBE Program Team (ME Department - DSU)	December 2017 to January 2019
Secretary, OBE Planning Committee (ME Department - DSU)	December 2017 to January 2019
Class Advisor (NED University)	January 2010 to May 2011
Faculty Coordinator, ASME NED Student Section	September 2009 to April 2011
Lab In-charge, Fluid Mechanics Lab (NED University)	January 2009 to January 2012
President of ASHRAE-NED Student Chapter	July 2007 to January 2009

BOOKS

1. Yilbas B.S., Mansoor S.B., **Ali H.**, Heat transport in micro and nanoscale thin films, Elsevier, September 2017.
2. Yilbas B.S., Al-Sharafi A., **Ali H.**, Self-Cleaning of Surfaces and Water Droplet Mobility, Elsevier, May 2019.

BOOK CHAPTERS

1. Yilbas B.S., **Ali H.**, Yousaf R., Al-Sharafi A., Hydrophobic Materials, Comprehensive Energy System, Elsevier, 2017. DOI: 10.1016/B978-0-12-809597-3.00253-4
2. Tahir F., Baloch A., **Ali H.**, Resilience of Desalination Plants for Sustainable Water Supply in Middle East, Sustainability Perspectives: Science, Policy and Practice, Springer, 2020. DOI: 10.1007/978-3-030-19550-2_15.

JOURNAL PUBLICATIONS

- J1. **Ali H.**, Anas Y., Raza SA, Uzair M., Performance Analysis of Solar-Based Multi-Generation System with Hydrogen Production, Energy Systems, 2025.
- J2. Ali G., Akhtar M., **Ali H.**, An Experimental Investigation into the Impact of Environmental Factors on Solar Panel Efficiency, Case Studies in the Environment, Vol. 9, Issue 1, Jan 2025.
- J3. Ali H., Uddin D., Naqvi AA, Naeem U., Akhtar N., Shams S., Karim A., Direct Air Carbon Capture Using Metal-Organic Frameworks (MOFs): Techno-Economic Performance of Temperature Vacuum Swing Adsorption (TVSA) Systems, Memoria Investigaciones en Ingeniería, 269-286, 2025.
- J4. Hamidani Y., **Ali H.**, Enterprise Architecture for Sustainable SME Resilience: Exploring Change Triggers, Adaptive Capabilities, and Financial Performance in Developing Economies, Sustainability, 17(15): 6688, 2025.
- J5. Azam MA, Siddiqui MA, **Ali H.**, Development of performance indicator for metal-organic frameworks in atmospheric water harvesting, Separation and Purification Technology, 2024.
- J6. **Ali H.**, Siddiqui MU, Ammar, Aswani MA, Umer M, Khan MI, Techno-economic analysis of various configurations of stand-alone PV-RO systems for Pakistan, Renewable Energy, 2024.
- J7. Uzair M., **Ali H.**, Khan SY, A numerical study to investigate the flow pattern around parabolic dish receiver system, Journal of Thermal Analysis and Calorimetry, 2024.
- J8. **Ali H.**, Ali S., Khan S., Siddiqui MU, Experimental Investigations of a Single-Slope Solar Still: Energy and Exergy Analysis, Energies, 16, 7659, 2023.
- J9. Siddiqui MU, Siddiqui OK, Alquaity ABS, **Ali H.**, Arif AFM, Zubair SM, A comprehensive review on multi-physics modeling of photovoltaic modules, Energy Conversion and Management, 271, 116266, 2022.

- J10. Siddiqui MU, Shahab MF, Siddiqui OK, **Ali H.**, Syed M Zubair, A comprehensive multi-physics model of photovoltaic modules with non-uniform solar concentration and serpentine cooling, *Energy Conversion and Management*, 271, 116266, 2022.
- J11. **Ali H.**, Al-Qahtani H., Yilbas BS, Mansoor SB, Thermal Conductivity Assessment in a Low Dimension Structure, *International Communications in Heat and Mass Transfer* 127, 105581, 2021.
- J12. Yilbas B.S., Abubakar A.A., **Ali H.**, Al-Sharafi A., Sahin AZ, Sunar M., Al Qahtani H.A., Impacting Water Droplets Can Alleviate Dust from Slanted Hydrophobic Surfaces, *Langmuir* 37, 14, 4355–4369, 2021.
- J13. Abubakar A.A., Yilbas B.S., Hassan G., Al Qahtani H.A., **Ali H.**, Al-Sharafi A., Droplet Impacting on a Hydrophobic Surface: Influence of Surface Wetting State on Droplet Behavior, *ASME Journal of Fluids Engineering*, 142(7): 071205, 2020.
- J14. **Ali H.**, Yilbas B.S., Al-Sharafi, Mansour S.B., Al-Qahtani H., Thermally excited quantum dot and energy transfer in thin films, *Physica B*, Vol. 595, p. 412346, 2020.
- J15. Yilbas B.S., Akhtar S.S., **Ali H.**, Karatas C., Al-Qahtani H., Laser treatment of SiALON and Surface Characteristics, *Journal of Manufacturing Processes*, Vol. 56, pp. 1230-1241, 2020.
- J16. **Ali H.**, Yilbas B.S., Thermal Energy Transport Across Combined Films: Thermal Characteristics, *Journal of Non-Equilibrium Thermodynamics*, DOI: 10.1515/jnet-2019-0021, 2019.
- J17. Al-Sharafi A., Yilbas B.S., **Ali H.**, Al-Qahtani H., Adhesion of a water droplet on inclined hydrophilic surface and internal fluidity, *International Journal of Adhesion and Adhesives*, Vol. 96, p. 102464, 2020.
- J18. **Ali H.**, Yilbas B.S., Microscale Thermal Energy Transfer Between Thin Films with Vacuum Gap at Interface, *Journal of Non-Equilibrium Thermodynamics*, DOI: 10.1515/jnet-2018-0092, 2019.
- J19. Tahir F., **Ali H.**, Baloch A., Jamil Y., Performance Analysis of Air and Oxy-Fuel Laminar Combustion in a Porous Plate Reactor, *Energies* Vol 12(9), pp. 1706, 2019.
- J20. **Ali H.**, Yilbas B.S., Phonon transfer in silicon-diamond films: influence of thermal boundary resistance on acoustic phonon intensities, *Physica B*, Vol. 556, p. 82-96, 2018.
- J21. **Ali H.**, Yilbas B.S., Configuration of Segmented Leg for the Enhanced Performance of Segmented Thermoelectric Generator, *International Journal of Energy Research*, Vol. 41(2), pp. 274-288, 2017.
- J22. Yilbas B.S., Hassan G., Al-Sharafi A., **Ali H.**, Al-Aqeeli N., Al-Sarkhi A., Water droplet dynamics on a hydrophobic surface in relation to the self-cleaning of environmental dust, *Nature Scientific Reports*, p. 2984, 2018.
- J23. **Ali H.**, Yilbas B.S., Al-Sharafi A., Thermal disturbance of thin films pair: cross-plane thermal energy transfer, *The Journal of Computational and Theoretical Transport*, in press, 2018.
- J24. **Ali H.**, Yilbas B.S., Crossplane phonon transport and thermal boundary resistance across thin films pair, *Journal of Thermophysics and Heat Transfer*, DOI: 10.2514/1.T5476, 2018.
- J25. Yilbas B.S., **Ali H.**, Al-Sharafi A., Karatas C., Laser fabricated tungsten oxide surface for solar energy harvesting and dust effects, *Solar Energy Materials and Solar Cells*, Vol. 191, pp. 190-198, 2019.
- J26. Yilbas B.S., **Ali H.**, Al-Sharafi A., H.Al-Qahtani H., Laser processing of Ti6Al4V alloy: wetting state of surface and environmental dust effects, *Heliyon*, Vol. 5, e01211, 2019.
- J27. Abu-Dheir N., Rifai A., Yilbas B.S., Yousaf M.R., Al-Sharafi A., **Ali H.**, Khaled M., Al-Aqeeli N., Sol-gel coating of colloidal particles deposited glass surface pertinent to self-cleaning applications, *Progress in Organic Coatings*, Vol. 127, pp. 202-210, 2019.
- J28. Yilbas B.S., **Ali H.**, Karatas C., Al-Sharafi A., Laser texturing of Inconel 718 alloy surface: Influence of environmental dust in humid air ambient, *Optics & Laser Technology*, Vol. 108, pp. 346-354, 2018.
- J29. Yilbas B.S., **Ali H.**, Al-Sharafi A., The Influence of Environmental Dust in Humid Ambient Air on Laser Surface Treated Carbide Cutting Tools, *Lasers in Engineering*, in press, 2019.

- J30. Yilbas B.S., Al-Sharafi A., **Ali H.**, Heating of a water droplet on inclined transparent polydimethylsiloxane (PDMS) surface, *Heat and Mass Transfer*, 56(5), 2020.
- J31. Yilbas B.S., **Ali H.**, Al-Sharafi A., Laser gas assisted nitriding and characterization of tungsten surface, *Optics & Laser Technology*, Vol. 107, pp. 274-280, 2018.
- J32. Al-Sharafi A., Yilbas B.S., **Ali H.**, Al-Aqeeli N., A Water Droplet Pinning and Heat Transfer Characteristics on an Inclined Hydrophobic Surface, *Nature Scientific Reports*, 10.1038/s41598-018-21511-w, 2018.
- J33. Al-Sharafi A., Yilbas B.S., **Ali H.**, Heat and flow analysis of a water droplet on hydrophobic and hydrophilic phase change material, *International Journal of Heat and Mass Transfer*, Vol. 122, pp. 749-764, 2018.
- J34. Yilbas B.S., Ibrahim A., **Ali H.**, Khaled M., Loai T., Hydrophobic and optical characteristics of graphene and graphene oxide films transferred onto functionalized silica particles deposited glass surface, *Applied Surface Science*, Vol. 442, pp. 213-223, 2018.
- J35. Yilbas B.S., **Ali H.**, Al-Sharafi A., Al-Aqeeli N., Droplet dynamics on a hydrophobic surface coated with N-octadecane phase change material, *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, Vol. 546, pp. 28-39, 2018.
- J36. Al-Sharafi A., Yilbas B.S., **Ali H.**, Droplet heat transfer on micro-post arrays with hydrophobic and hydrophilic characteristics, *ASME, J. Heat Transfer*, Vol. 140, p. 072402, 2017
- J37. Yilbas B.S., **Ali H.**, Al-Sharafi A., Al-Sulaiman F., C. Karatas, Effect of environmental dust particles on laser textured yttria-stabilized zirconia surface in humid air ambient *Optics and Laser Technology*, Vol. 101, pp. 388-396, 2018.
- J38. Yilbas B.S., **Ali H.**, Al-Sharafi A., Al-Aqeeli N., Reversible exchange of wetting state of a hydrophobic surface via phase change material coating, *RSC Advance*, Vol. 8, pp. 938-947, 2018.
- J39. Yousf M.R., Yilbas B.S., **Ali H.**, Assessment of optical transmittance of oil impregnated and non-wetted surfaces in outdoor environment towards solar energy harvesting, *Solar Energy*, Vol. 163, pp. 25-31, 2018.
- J40. **Ali H.**, Yilbas B.S., Al-Sharafi A., Innovative design of a thermoelectric generator with extended and segmented pin configurations, *Applied Energy*, Vol. 187, pp. 367-379, 2017.
- J41. **Ali H.**, Yilbas B.S., Thermal characteristics and phonon transport in diamond and silicon thin films, *Journal of Thermophysics and Heat Transfer*, Vol. 31(1), pp. 56-68, 2017. (DOI: 10.2514/1.T4671)
- J42. **Ali H.**, Yilbas B.S., Innovative design of a thermoelectric generator of extended legs with tapering and segmented pin configuration: thermal performance analysis, *Applied Thermal Engineering*, Vol. 123, pp. 74-91, 2017.
- J43. Yilbas B. S., Al-Sharafi A., **Ali H.**, Al-Aqeeli N., Dynamics of water droplet on hydrophobic inclined surface: influence of droplet size and surface inclination angle on droplet rolling, *RSC Advance*, Vol. 7, pp. 48806-48818, 2017. (DOI: 10.1039/C7RA09345D)
- J44. Yilbas B.S., **Ali H.**, Al-Sharafi A., Al-Aqeeli N., Laser gas assisted texturing and formation of nitride and oxynitride compounds on alumina surface: surface response to environmental dust, *Optics and Laser in Engineering*, Vol. 102, pp. 1-9, 2018.
- J45. Yilbas B.S., **Ali H.**, F. Al-Sulaiman, H. Al-Qahtani, Effect of mud drying temperature on surface characteristics of a polycarbonate PV protective cover, *Solar Energy*, Vol. 143, pp. 63-72, 2017.
- J46. Yilbas B.S., Ibrahim A., **Ali H.**, Khaled M., Laoui T., Effect of graphene film on laser textured alumina surface characteristics, *Ceramics International*, Vol. 43, pp. 2012-2021, 2017.
- J47. **Ali H.**, Yilbas B.S., Phonon transport across multi-layered structure subjected to laser short irradiation pulse, *Optical and Quantum Electronics*, Vol. 49(1), p. 9, 2017.
- J48. Yilbas B. S., H. Ghassan, **Ali H.**, Al-Sulaiman F., Environmental dust effects on aluminum surfaces in humid air ambient, *Nature Scientific Reports*, Vol. 7, p.45999, 2017.

- J49. Al-Sharafi A., Yilbas B. S., **Ali H.**, Heat transfer and fluid flow characteristics in a sessile droplet on oil impregnated surface under thermal disturbance, *ASME Journal of Heat Transfer*, Vol. 139(9), p. 092004, 2017. (DOI: 10.1115/1.4036388)
- J50. Yilbas B.S., **Ali H.**, Al-Sharafi A., Al-Aqeeli N., Environmental mud adhesion on optical glass surface: effect of mud drying temperature on surface properties, *Solar Energy*, Vol. 150, pp. 73-82, 2017.
- J51. Al-Sharafi A., Yilbas B. S., **Ali H.**, Water droplet adhesion on hydrophobic surfaces: influence of droplet size and inclination angle of surface on adhesion force, *ASME Journal of Fluid Engineering*, Vol. 138(8), p. 081302, 2017.
- J52. H. Ghassan, Yilbas B. S., Samad M.A., **Ali H.**, Al-Sulaiman F., Al-Aqeeli N., Analysis of environmental dust and mud adhesion on aluminum surfaces in relation to solar energy harvesting, *Solar Energy*, Vol. 153, pp. 590–599, 2017.
- J53. Yilbas B.S., Yousaf R., Al-Sharafi A., **Ali H.**, Al-Sulaiman F., Abu-Dheir N., Khaled M., Al-Aqeeli N., Silicone oil impregnated nanosilica modified glass surface and influence of environmental dust particles on optical transmittance, *RSC Advances*, Vol. 7(47), pp. 29762-29771, 2017.
- J54. Shuja S.Z., Yilbas B.S., **Ali H.**, Laser Heating of a Steel Based Metal Matrix Composite: Influence of Laser Pulse Parameter and Particle Number Density on Melt Pool Size, *Laser in Engineering*, in press, 2017.
- J55. Al-Sharafi A., **Ali H.**, Yilbas B.S., Sahin A. Z., Al-Aqeeli N., Al-Sulaiman F., Khaled M., Internal Flow and Heat Transfer in a Droplet Located on a Superhydrophobic Surface, *International Journal of Thermal Sciences*, Vol. 121, pp. 213-227, 2017.
- J56. Yilbas B.S., **Ali H.**, Al-Sharafi A., Al-Aqeeli N., Abu-Dheir N., Al-Sulaiman F., Khaled M., Characteristics of solar selective absorber surface subjected to environmental dust in humid air ambient, *Solar Energy Materials and Solar Cells*, Vol. 172, pp. 186-194, 2017.
- J57. **Ali H.**, Yilbas B.S., Al-Sharafi A., Thermal transport in thin dielectric films with minute size aluminum dot in relation to microelectronics, *Applied Thermal Engineering*, Vol. 127, pp. 1025-1035, 2017.
- J58. Ali D., Yilbas B.S., Pirim H., **Ali H.** Texture analysis of crystallized hydrophobic polycarbonate and polydimethylsiloxane surfaces using persistent homology, *Coating*, 10.3390/coatings7090139, 2017.
- J59. Al-Sharafi A., Yilbas B.S., **Ali H.**, Water droplet mobility on a hydrophobic surface under a thermal radiative heating, *Applied Thermal Engineering*, Vol. 128, pp. 92-106, 2018.
- J60. **Ali H.**, Yilbas B.S., Al-Sharafi, A Segmented thermoelectric generator: exponential area variation in leg, *International Journal of Energy Research*, Vol. 42, pp. 477-489, 2017.
- J61. Shuja S.Z., Yilbas B.S., **Ali H.**, Laser Heating of a Moving Slab: Influence of Duty Cycle and Irradiated Spot Diameter on Temperature Field, *Laser in Engineering*, in press, 2017.
- J62. **Ali H.**, Yilbas B.S., Phonon cross-plane transport and thermal boundary resistance: effect of heat source size and thermal boundary resistance on phonon characteristics, *Continuum Mechanics and Thermodynamics*, Vol. 28, pp. 1373-1393, 2016.
- J63. Al-Sharafi A., Yilbas B.S., Sahin A.Z., **Ali H.**, Flow Field inside a sessile droplet on a hydrophobic surface in relation to self cleaning applications of dust particles, *ASME Journal of Heat Transfer*, Vol. 139(4), p. 042003, 2016.
- J64. Yilbas B.S., Salhi B., Rizwan M., Al-Sulaiman F., **Ali H.**, Al-Aqeeli N., Surface characteristics of silicon nanowires/nanowalls subjected to octadecyltrichlorosilane deposition and noctadecane coating, *Nature Scientific Reports*, Vol. 6, p.38678, 2016.
- J65. Yilbas B.S., **Ali H.**, Khaled, Al-Aqeeli N., Al-Sulaiman F., Laser gas assisted texturing of alumina surfaces and effects of environmental dry mud solution on surface characteristics, *Ceramics International*, Vol. 24(1-A), pp. 396-404, 2016.

- J66. Yilbas B.S., **Ali H.**, Laser texturing of Hastelloy C276 alloy surface for improved hydrophobicity and friction coefficient, *Optics and Lasers in Engineering*, Vol. 78, pp. 140-147, 2016.
- J67. Yilbas B.S., **Ali H.**, Karatas C., Laser gas assisted treatment of Ti-alloy: Analysis of surface characteristics, *Optics and Laser Technology*, Vol. 78, Part B, pp. 159-166, 2016.
- J68. Yilbas B.S., **Ali H.**, Al-Aqeeli N., Karatas C., Laser treatment of Inconel 718 alloy and surface characteristics, *Optics and Laser Technology*, Vol. 78, Part B, pp. 153-158, 2016.
- J69. **Ali H.**, Yilbas B.S., Al-Dweik A. Y., Non-equilibrium energy transport and entropy production due to laser short-pulse irradiation, *Canadian Journal of Physics*, Vol. 94(1), pp. 130-138, 2016.
- J70. Al-Sharafi A., **Ali H.**, Yilbas B.S., Sahin A.Z., Khaled M. M., Al-Aqeeli N., Al-Sulaiman F., Influence of thermalcapillary and buoyant forces on flow characteristics in a droplet on a hydrophobic surface, *International Journal of Thermal Sciences*, Vol. 102, pp. 239-253, 2016.
- J71. Yilbas B.S., **Ali H.**, Al-Aqeeli N., Abu-Dheir N., Khaled M. M., Influence of mud residues on solvent induced crystalized polycarbonate surface used as PV protective cover, *Solar Energy*, Vol. 125, pp. 282-293, 2016.
- J72. Yilbas B.S., Akhtar S.S., Karatas C, **Ali H.**, Boran K., Khaled M., Al-Aqeeli N., Aleem B.J. A., Laser Treatment of Aluminum Composite and Investigation of Thermal Stress Field, *International Journal of Advanced Manufacturing Technology*, Vol. 86(9), pp. 3547-3561, 2016.
- J73. Yilbas B.S., **Ali H.**, Al-Aqeeli N., Oubaha M.M., Khaled M., Abu-Dheir N., Laser gas assisted nitriding and sol-gel coating of alumina surfaces: effect of environmental dust on surfaces, *Surface and Coatings Technology*, Vol. 289, pp. 11-22, 2016.
- J74. Yilbas B.S., **Ali H.**, Al-Aqeeli N., Khaled M., Abu-Dheir N., Varanasi K. K., Solvent induced crystallization of a polycarbonate surface and texture copying by PDMS towards improved surface hydrophobicity, *Journal of Applied Polymer Science*, Vol. 133(22), p. 43467, 2016.
- J75. Yilbas B.S., **Ali H.**, Rizwan M., Kassas M., Laser treatment of a neodymium magnet and analysis of surface characteristics, *Optics and Laser Technology*, Vol. 82, pp. 191-198, 2016.
- J76. Yilbas B.S., **Ali H.**, Al-Aqeeli N., Khaled M., Abu-Dheir N., Varanasi K. K., Characterization of environmental dust in the Dammam area and mud after-effects on bisphenol-a polycarbonate sheets, *Nature Scientific Reports*, Vol. 6, p. 24308, 2016.
- J77. Yilbas B.S., Bhushan B., **Ali H.**, Askandarani A., Coating of Nanocrystalline metallic wires on steel substrate: Mechanical characteristics of coating layer, *Canadian Metallurgical Quarterly*, Vol. 55(3), pp. 295-302, 2016.
- J78. Yilbas B.S., **Ali H.**, Ballistic Phonon and Thermal Radiation Transport across a Minute Vacuum Gap in Between Aluminum and Silicon Thin Films: Effect of Laser Repetitive Pulses on Transport Characteristics, *Physica B*, Vol. 495, pp. 21-34, 2016.
- J79. **Ali H.**, Yilbas B.S., Al-Sulaiman F., Segmented Thermoelectric Generator: Influence of Pin Shape Configuration on the Device Performance, *Energy*, Vol. 111, pp. 439-452, 2016.
- J80. Rizwan M., Yilbas B.S., **Ali H.**, Al-Aqeeli N., Replication of Laser Textured Alumina Surfaces by PDMS: Improvement of Surface Hydrophobicity, *Journal of Applied Polymer Science*, Vol. 133(41), p. 44015, 2016. (DOI: 10.1002/APP.44015)
- J81. **Ali H.**, Yilbas B.S., Thermal transport across a thin silicon films pair with presence of minute vacuum gap: effect of film thickness on thermal characteristics, *Canadian Journal of Physics*, Vol. 94(9), pp. 933-944, 2016.
- J82. **Ali H.**, Yilbas B.S., Energy Transport across the thin films pair with presence of minute vacuum gap at interface, *Journal of Non-Equilibrium Thermodynamics*, 2016. (DOI: 10.1515/jnet-2016-0030)
- J83. Al-Sharafi A., Yilbas B.S., Sahin A.Z., **Ali H.**, Al-Qahtani H., Heat transfer characteristics and internal fluidity of a sessile droplet on hydrophilic and hydrophobic surfaces, *Applied Thermal Engineering*, Vol. 108, pp. 628-640, 2016.

- J84. Shuja S.Z., Yilbas B.S., **Ali H.**, Karatas C., Laser pulse heating of steel mixing with WC particles in a irradiated region, *Optics and Laser Technology*, Vol. 86, pp. 126-135, 2016.
- J85. A. Al-Sharafi, Yilbas B.S., **Ali H.**, Sahin A.Z., Internal fluidity of a sessile droplet with presence of particles on hydrophobic surface, *Numerical Heat Transfer: Part A*, Vol. 70(10), pp. 1118-1140, 2016.
- J86. **Ali H.**, Yilbas B.S., Influence of pin material configurations on thermoelectric generator performance, *Energy Conversion and Management*, Vol. 129, pp. 157-167, 2016.
- J87. **Ali H.**, Yilbas B.S., Phonon transport in a silicon film with the presence of an aluminum dot in the film, *Journal of Computational and Theoretical Transport*, Vol. 44, pp. 254-279, 2015.
- J88. **Ali H.**, Yilbas B.S., Phonon transport in a thin film due to temperature oscillation at the film edge, *International Journal of Nonlinear Sciences and Numerical Simulation*, Vol. 16(7-8), pp. 315-324, 2015.
- J89. **Ali H.**, Yilbas B.S., Sahin A.Z., Exergy analysis of a thermoelectric power generator: influence of bi-tapered pin geometry on device characteristics, *Int. J. Exergy*, Vol. 16(1), pp. 53-71, 2015.
- J90. **Ali H.**, Mansoor S.B., Yilbas B.S., Thermal characteristics of an aluminum thin film due to temperature disturbance at film edges, *Journal of Thermophysics*, Vol. 36, pp. 157-182, 2015.
- J91. Yilbas B.S., **Ali H.**, Khaled M. M., Al-Aqeeli N., Abu-Dheir N., Varanasi K. K., Influence of dust and mud on optical, chemical and mechanical properties of PV protective glass, *Nature Scientific Reports*, Vol. 5, p. 15833, 2015.
- J92. Yilbas B.S., **Ali H.**, Khaled M., Al-Aqeeli N., Abu-Dheir N., Varanasi K. K., Characteristics of laser textured silicon surface and effect of mud adhesion on hydrophobicity, *Applied Surface Science*, Vol. 351, pp. 880-888, 2015.
- J93. **Ali H.**, Yilbas B.S., Phonon transport in silicon-diamond thin film pairs: consideration of thermal boundary Resistance due to cut-off mismatch and diffusive mismatch models, *Numerical Heat Transfer, Part A: Applications*, Vol. 68, pp. 1307-1330, 2015.
- J94. Yilbas B.S., **Ali H.**, Thermoelectric generator performance analysis: Influence of pin tapering on the first and second law efficiencies, *Energy Conversion and Management*, Vol. 100, pp. 138-146, 2015.
- J95. Yilbas B.S., **Ali H.**, Closed form solution for temperature rise in a two-layer assembly during laser step input pulse heating consideration of convection cooling at surface, *Laser in Engineering*, Vol. 32(3-4), pp. 241-261, 2015.
- J96. **Ali H.**, Yilbas B.S., Phonon transport characteristics across the silicon thin films pair: presence of a gap in between the film, *Journal of Non-Equilibrium Thermodynamics*, Vol. 40(3), pp. 153-170, 2015.
- J97. **Ali H.**, Yilbas B.S., Transient effects of temperature disturbance on phonon characteristics in thin diamond film, *Journal of Computational and Theoretical Transport*, Vol. 44(3), pp. 119-140, 2015.
- J98. **Ali H.**, Yilbas B.S., Energy transport across thin silicon-diamond films pair with minute vacuum gap at the interface, *Optical and Quantum Electronics*, Vol. 48(8), pp. 2821-2841, 2015.
- J99. **Ali H.**, Yilbas B.S., Effect of film thickness on thermal transport characteristics in Aluminum thin film, *Journal of Thermophysics and Heat Transfer*, Vol. 29(4), pp. 711-724, 2015.
- J100. Yilbas B.S., **Ali H.**, Laser treatment of alumina surface with chemically distinct carbide particles, *Optics and Laser Technology*, Vol. 64, pp. 1-6, 2014.
- J101. **Ali H.**, Yilbas B.S., Entropy generation in silicon thin film: influence of film thickness on entropy generation rate, *Journal of Non-Equilibrium Thermodynamics*, Vol. 39 (3), pp. 147-158, 2014.
- J102. **Ali H.**, Yilbas B.S., Effect of temperature oscillation on thermal characteristics of an aluminum thin film, *Applied Physics A*, Vol. 117(4), pp. 2143–2158, 2014.

- J103. Yilbas B.S., **Ali H.**, Al-Dweik A. Y., Thermal Stress Analysis and Entropy Generation Rate Due to Laser Short Pulse Heating of a metallic surface, *Canadian Journal of Physics*, Vol. 92(12), pp. 1681-1687, 2014.
- J104. **Ali H.**, Yilbas B.S., Influence of heat source size and film thickness on phonon transport in a two-dimensional thin film, *Journal of Non-Equilibrium Thermodynamics*, Vol. 39 (2), pp. 79-91, 2014.
- J105. **Ali H.**, Sahin A.Z., Yilbas B.S., Thermodynamic analysis of a thermoelectric power generator in relation to geometric configuration device pins, *Energy Conversion and Management*, Vol. 78, pp. 634-640, 2014.

CONFERENCE PAPERS

- C1. **Ali H.**, and Gandhidasan P., Performance Evaluation of Photovoltaic String with Compound Parabolic Concentrator, *International Conference on Energy and Environment Research (ICEER 2014)*, July 18-19, Madrid, Spain.
- C2. Tahir F., **Ali H.**, Baloch AB, Transient Analysis of Air Bubble Rise in Stagnant Water Column Using CFD, *Eleven International Conference on Thermal Engineering: Theory and Applications*, February 25-28, 2018, Doha, Qatar.
- C3. Tahir F., **Ali H.**, Baloch AB, Analysis of steam reforming of methane integrated with solar central receiver system, *Qatar Foundation Annual Research Conference Proceedings 2018: EEPD969* DOI: 10.5339/qfarc.2018.EEPD969.
- C4. Aqeel R., Raza A., Ahmed S., Aashquin M., **Ali H.**, Effect of Heat Sink Configuration on the Performance of Thermoelectric Refrigeration, *2021 IEEE Latin America Electron Devices Conference (LAEDC)*, April 19-21, 2021. (DOI: 10.1109/LAEDC51812.2021.9437978)
- C5. Khan O., Arshed G., Raza A., **Ali H.**, Computational Modeling of Heat Transfer from a Horizontal Array of Cylinders for Low Reynolds Numbers, *AIAA SciTech Forum*, Jan. 2025. (DOI: 10.2514/6.2025-1227).

PATENTS

- P1. Yilbas B.S., **Ali H.**, Laser ablation method for treating a copper alloy containing metallic surface and increasing hydrophobicity, US 20170014946 A1
- P2. Yilbas B.S., **Ali H.**, Laser ablation method for treating a zirconia containing ceramic surface, US9708225 B2
- P3. Yilbas B.S., **Ali H.**, Method for hydrophobicizing a copper-tin alloy, US 10112264 B2

FUNDED PROJECTS

- PI, Establishment of AVIAN in NEDUET, Ministry of Science and Technology, Pakistan.
- Co-PI, Establishment of Smart Energy Efficiency and Audit Centre: Machine Learning for Sustainable Solution in NEDUET, Ministry of Science and Technology, Pakistan.
- Co-PI, Modelling and Performance Evaluation of Sustainable Atmospheric Water Generation using Water-selective Metal-organic Frameworks, Ministry of Science and Technology, Pakistan.
- Won a grant for Laboratory Strengthening Programme for IMES Lab, Sindh HEC, Pakistan.
- Won a Centre for Excellence in Energy Studies from Planning Commission of Pakistan of worth PKR 218 million
- PI, Performance Analysis of Direct Air Capture Technologies for Pakistan, Sindh HEC, Pakistan.
- PI, Development of Internet of Things based Indoor Air Quality and Smart Energy Management System for HVAC System, ASHRAE International, USA.
- Co-PI, Phonon transport across thin films in relation to thermoelectric applications, DSR Project No. RG 1301, KFUPM, KSA.
- Co-PI, Engineered Dust & Water Repellant Surfaces for Solar PV & Concentrated Solar Application in Desert Environments, MIT11111-11112, KSA.

- Co-PI, Design Optimization of Thermoelectric Generators for Waste Heat Extraction, NSTIP 13-ENE271-04-R, KSA.
- Co-PI, Energetic and exergonic performance analysis of a multigeneration system including thermoelectric generator, DSR Project No. RG 1501, KFUPM, KSA.

GRADUATE THESIS SUPERVISION

MASTERS PROJECTS

- Student: Gohar Ali, Title: An Experimental Investigation into the Impact of Environmental Factors on Solar Panel Efficiency, Status: Completed.
- Student: Yasir Anas, Title: Techno-Economic Analysis of Solar-Based Multi-Generation System with Hydrogen Production, Status: Completed.
- Student: Asad Javed, Title: Development of Digitized Data Acquisition Plan for Quality 4.0, Status: Completed.
- Student: Hassan Safwan, Title: Integration of Stochastic Analysis and Machine Learning for Development of Energy Policy Guidelines, Status: Completed.
- Student: Muhammad Ayan Ahmed, Title: Optimization of Hybrid Renewable Energy Systems for different cities of Pakistan, Status: In-progress.

PhD PROJECTS

- Scholar: Syed Aun Ali Rizvi, Title: Performance Enhancement of Concentrated Parabolic Trough Collector System, Status: Completed.
- Scholar: Muhammad Anique Azam, Title: Modelling and Performance Evaluation of Sustainable Atmospheric Water Generation using Water-selective Metal-organic Frameworks, Status: In-progress.

FUNDED FINAL YEAR PROJECTS

- Development of Digital Twin Framework for Turbomachinery, Funded by Ignite 2024.
- Development of Machine Vision Enabled Autonomous Fire Detection Vehicle, NED Alumni Association of Southern California Award, 2024.
- Development of IoT based Solar Desalination System, Funded by Ignite 2023.
- Development of Photovoltaic (PV) Panel Cleaning Mechanism, NED Alumni Association of Southern California Award, 2024.
- Design and Analysis of Photovoltaic Power Reverse Osmosis Desalination System, Funded by Ignite 2022.
- Design and fabrication of Thermoelectric Refrigerator, Funded by Ignite 2021.

INTERNATIONAL MOBILITY

- Dublin City University, under Capacity Building EU Project (GetInnovative4Impact), 30th August – 8th September 2024 at Cranfield University, UK.
- Cranfield University, UK under Pak-UK Mobility Programme by Higher Education Commission and British Council, 24th – 30th September 2013.

SKILLS

- **Engineering Software**
Power BI, Python, Tableau, MATLAB, Engineering Equation Solver (EES), COMSOL, Hourly Analysis Program (HAP) and Transient System Simulation Tool (TRNSYS).
- **Materials Characterization**
Scanning electron microscopy, X-Ray diffraction, Atomic Force Microscopy, Scratch Testing, , Contact angle goniometer.

CONDUCTED SHORT COURSES, WORKSHOPS & SEMINARS

- Conducted a Seminar on “***Applications of IoTs in Mechanical and Manufacturing Engineering***” in NED University 2024.
- Conducted a Seminar on “***Applications of AR and VR in Product Development***” in NED University 2024.
- Conducted a Seminar on “***Technical Report Writing***” in NED University 2022, 2023 and 2024.
- Conducted a Seminar on “***Cooling Load Calculation using HAP***” in NED University 2022, 2023 and 2024.
- Conducted three days’ course on “***Fundamentals of Water System Design***” for American Society of Heating Refrigerating and Air-Conditioning Engineering (ASHRAE) in December 2011.
- Conducted three days’ course on “***Fundamentals of Air System Design***” for American Society of Heating Refrigerating and Air-Conditioning Engineering (ASHRAE) in October 2011.
- Conducted the two days’ workshop on “***Cooling Load Theory & Carrier E-20 HAP Software***” for NED University in 2009 and 2010.

ATTENDED SHORT COURSES, WORKSHOPS & SEMINARS

- Certificate Course from Coursera “***Supervised Machine Learning: Regression and Classification***”, DeepLearning.AI and Stanford Online.
- Certificate Course from Coursera “***Master the Art of Data Visualization with Tableau Public***”, Coursera project network.
- Certificate Course from Coursera “***Introduction to the Internet of Things and Embedded Systems***”, University of California, Irvine.
- Workshop on “***Revamping of Undergraduate Curriculum***” organized by Higher Education Commission, Pakistan.
- Seminars on “***Enhancing Research Skills***”, “***Active Learning Strategies***” and “***Lab Safety Procedures***” organized by Deanship of Academic Development, KFUPM, KSA.
- Seminar on “***Become an Engineer Athlete by Managing Your Energy for Extraordinary Results***” organized by NED Engineers Forum, KSA.
- Short courses on “***Computational Fluid Dynamics***” and “***Maintenance, Operation & Control of Boilers***” from Center for Continuing Engineering Education, NED University, Karachi.
- Workshop on “***Power Lab and Lab Tutor in Teaching Biomedical Engineering***” organized by ADInstruments.
- Workshop on “***Vacuum and Thin Film Technology***” organized by National Centre for Physics, Islamabad.

ACHIEVEMENTS AND AWARDS

- Organized ***1st, 2nd and 3rd AI and IoT Exhibition*** in NED University.
- Organized One Day International Workshop ***Mitigating Climate Change: Technological and Ecological Solutions in 2024***, under Pak-Mobility Research Project funding by British Council.
- Organized ***MechXpo 2024***, for Department of Mechanical Engineering in NED University.
- ***Four Years reaccreditation*** for BE(ME) Program of NEDUET under ***Level-II Washington Accord***.
- Development of ***Intelligent Mechanical Engineering Systems (IMES) Lab*** in Department of Mechanical Engineering, NED University.
- Introduced the courses ***ME-438 AI and IoT*** and ***ME-439 Mechatronics in*** BE(ME) program, Department of Mechanical Engineering, NED University.
- ***Level-II Accreditation*** for BE(ME) Program of DHA Suffa University.
- Development and Implementation of ***Policy for Development, Approval and Delivery of Online Courses*** for DHA University.
- Implementation of ***Relative Grading System*** in DHA Suffa University.
- ***Best Paper Presentation Award - International Conference on Energy and Environment Research (ICEER2014)***, July 18-19, 2014, Madrid, Spain.
- Organized ***ASME Mechanical Engineering Competitions and Exhibition (MECE) 2010*** in NED University.

- Accreditation of ***Bio-Medical Department***, NED from ***Pakistan Engineering Council*** 2010.
- Developed ***Bio-Medical Engineering Division*** in ASME NED Student Section 2009.
- Secured ***Merit scholarships*** during Bachelor degree in ***NED***.