Prof. Dr. MOHSIN ALI RAZA

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Education

2009-2012 Institute for Materials Research, University of Leeds, UK, **Doctor of Philosophy**

Thesis Title: Carbon nanofiller-based composites for thermal interface applications

***Acknowledgement**: EPSRC, UK and Dorothy Hodgkin Scholarship provided by University of Leeds,UK.*

2005-2007 KTH-Royal Institute of Technology, SE-100 44, Stockholm, Sweden, **Master of Science with a major in Materials Science and Engineering specialized in Nanomaterials and Nanotechnology** (1st class , 4.6 GPA out of 5)

Thesis Title: Calcium carbonate and silica nanoparticles for enhanced thermal stability of ethylene-co-methacrylic acid copolymers.

***Acknowledgement**: Faculty development Scholarship provided by HEC, Pakistan.*

1995-2000 Institute of Chemical Engineering and Technology, University of the Punjab, Lahore , Pakistan, **Bachelor of Science in Metallurgy and Materials Science Engineering.** (1st class, 78 % Marks)

BSc Engineering Projects:
-Hard Chrome and Zinc Plating and their corrosion behavior in Salt spray test.
-Project Design on Cathodic Protection of Underground water pipe lines with galvanic anodes.

1992-1994 Govt. Degree College, Jhelum, Pakistan

1990-1992 Higher Secondary School Certificate (1st class)

Professional Experience/Current Job

- **Director**, Institute of Metallurgy and Materials Engineering, University of the Punjab, Lahore, Pakistan (25.01.2021 to date)

- **Chairman**, Department of Metallurgy and Materials Engineering, University of the Punjab, Lahore, Pakistan (10.12.2020 to 24.01.2021)

- **Professor** of Metallurgy and Materials Engineering at Department of Metallurgy and Materials Engineering, College of Engineering and Emerging Technologies, University of the Punjab, Lahore, Pakistan (10.03.2020 to date).

- **Assistant Professor** at Department of Metallurgy and Materials Engineering, College of Engineering and Emerging Technologies, University of the Punjab, Lahore, Pakistan (17.06. 2014 to 9.03.2020).
- Assistant Professor on Adhoc basis at Department of Metallurgy and Materials Engineering, College of Engineering and Emerging Technologies, University of the Punjab, Lahore, Pakistan (16.08. 2012 to 16.06.2014).
- Worked as **Lecturer** at Department of Metallurgy and Materials Engineering, University of the Punjab, Lahore, Pakistan (21.08.2002 to 15.08.2012).
- Worked as **Lecturer** on Adhoc basis at Department of Metallurgy and Materials Engineering, ICET, University of the Punjab, Lahore, Pakistan (16.01.2001 to 20.08.2002).
- Worked as **Visiting Research Fellow** for two months at University of Leeds, UK for Morgan Advanced Materials and Technology, UK on a project entitled "Development and characterization of graphite nanoplatelet based composites" (April 2012-June 2012).

Grants/Award/Scholarship/Membership

- I have been ranked among **the top 2% of researchers globally**, according to an evaluation by Stanford University in its 7th version.
- My project titled "In situ growth of nickel ammonium phosphate ribbons on nickel foam for supercapacitor applications" won first position in All Punjab Universities Innovation Expo 2023" organized by Punjab Higher Education Commission on 20th Nov. 2023.
- I was awarded **a grant of Rs. 17 million** in 2014 (project started in 2015**) from Higher Education Commission of Pakistan under National University Program** for carrying out research on the project entitled "Synthesis of Graphene nanoplatelets and Development of Graphene nanoplatelet/polymer composites for electronics packaging and functional applications". The project was successfully completed.
- I established Advanced Materials Characterization Labs including SEM, XRD and AFM labs at Institute of Metallurgy and Materials Engineering, University of the Punjab.
- I played a pivotal role in the upgradation of laboratories of Institute of Metallurgy and Materials Engineering, University of the Punjab.
- I also won "Innovation award 2015 for shoe sole material" from Institute of Research Promotion.
- In 2008, I was selected among the candidates of developing countries including China and India for the award of Dorothy Hodgkin Postgraduate scholarship, jointly sponsored by Engineering and Physical Sciences Research Council, UK and Morgan AM&T, for PhD studies at University of Leeds, UK.

- I won the prestigious EPSRC, UK Postdoctoral fellowship twice, one in 2012 and the second in 2014 at University of Leeds, UK. I didn't avail these postdoctoral fellowships and preferred to serve my own country.
- I was awarded scholarship in 2005 from Higher Education Commission of Pakistan for MSc. Engineering studies at Royal Institute of Technology (KTH), Stockholm, Sweden.
- I played a key role in establishment of State-of-the-art materials characterization labs at Institute of Metallurgy and Materials Engineering. I was instrumental in the procurement, installation and maintenance of the equipment such as scanning electron microscope, x-ray diffraction, atomic force microscope, universal testing machine, potentiostat, etc.
- I served as a member of HEC National curriculum revision committee for Metallurgy and Materials Engineering disciple in 2017.
- I actively participated in curriculum development of B.Sc. (Engg), MSc (Engg.) and PhD (Engg) programs of Metallurgy and Materials Engineering.
- As a director I took initiative in designing and obtaining approval of the following degree programs:
  (i) MSc. (Engg.) Computational Materials Engineering
  (ii) MSc. (Engg.) Corrosion and Surface Engineering
  (iii) MPhil Materials Science and Technology
- I am certified OBE Program Evaluator for Pakistan Engineering Council.

PhD Produced

1. Umar Aslam Khan, successfully defended his thesis "Development of Biopolymer composites for Biomedical Applications" in 2022.
2. Aamir Nadeem, successfully defended his thesis "Synthesis and characterization of boron nitride nanosheets based coatings on metallic substrates and to study their corrosion behavior" in 2023.
3. Zaeem Ur Rehman, successfully defended his thesis "Development of Graphene-based composite electrodes for energy storage" in 2023.

PhD supervision (in progress)

Currently, I am supervising two PhD students. The titles of their projects are given below:

- Development of graphene-based carbon fiber reinforced hybrid polymer composites for aerospace applications
- Doped Zinc Aluminate spinel compounds for functional applications.
- Doped magnesium aluminate spinels and lignin derived carbon-based hybrid electrodes for supercapacitor applications

Research Interests

- Processing and characterization of polymer and their nanocomposites.
- Synthesis and characterization of carbon nanomaterials (graphene, graphite nanoplatelets, carbon nanotubes, vapour grown carbon nanofibres and carbon black, etc.)

- Synthesis and characterization of boron nitride nanosheets and other 2D nanomaterials.
- Graphene-based coatings for corrosion protection of metals.
- Thermal interface materials.
- Polymer composites/adhesives for electronic packaging applications.
- Polymer and metallic coatings for corrosion protection of metals.
- Physical metallurgy of steels.
- Surface hardening of steels.
- Solution combustion and solid-state methods for the production of pervoskite materials.

Technical Skills

I have a good experience in using following analytical techniques for materials' characterization:

- Optical microscopy
- Electron microscopy
- Atomic force microscopy
- X-ray diffraction
- X-ray diffraction texture goniometry
- Thermogravimetric analysis
- Differential scanning calorimetry
- Gas adsorption for BET surface area analysis
- Dynamic mechanical thermal analyser
- Rheometer
- Hot disk thermal constant analyser for measurement of thermal conductivity of polymers and composite materials
- Guarded hot plate method for measurement of thermal contact resistance of thermal interface materials
- Electrical conductivity measurement by two-probe and four-probe method
- Fourier transform infrared spectroscopy
- Mechanical testing of materials (tensile, compression, bend, shear tests, etc)
- Profilometer for studying surface roughness and surface profile
- Hardness testing machines (Shore hardness tester, Vickers, Rockwell and Brinell hardness testing machines)
- Electrochemical characterization techniques (Cyclic voltammetry, Tafel analysis, electrochemical impedance spectroscopy, etc.)

Computer Skills

- Windows
- Microsoft office
- Origin
- Corel draw
- Xpert High score plus
- Match

Teaching Skills

I have taught following courses to B.Sc. Metallurgy and Materials Engineering students:

- Material characterisation techniques
- Polymeric materials (properties, characterization and processing of polymers).
- Composite materials (properties, types, applications and processing of composite materials).
- Engineering ceramics and glasses (raw materials, refractories, glazes, enamels, processing techniques)
- Heat treatment of steels.
- Tribology and Surface Engineering of materials (Friction and wear of materials, surface hardening, case hardening, diffusion metallizing, etc.)
- Wet analysis of metals and ores.
- Advanced Materials (magnetic, semiconductor, biomaterials, ferroelectric materials, etc.)

I have taught following courses to MPhil Polymer Technology, MSc. (Engg.) and PhD (Engg.) Metallurgy and Materials Engineering students:

- Advanced materials
- Research methodology
- Material characterisation
- Nanomaterials and nanotechnology
- Electrical and magnetic properties of materials.
- Advanced composites
- X-ray diffraction

Research Projects

I have completed following research projects during my job except the last one which is in progress.

Project	Funding Body	Year	Amount
Development and characterization of hybrid polymer nanocomposites for functional applications	University of the Punjab	2013-2014	Rs. 0.15 million
Development of polyurethane based shoe sole material	Shafi Reso Chemical Industries Lahore	2013-2014	Rs. 0.05 million
Synthesis of Graphite nanoplatelets and Development of Graphite nanoplatelet/epoxy and silicone composites	University of the Punjab	2014-2015	Rs. 0.15 million
Development of Welding Flux powder	Shafi Reso	2013-2014	Rs. 0.05

	Chemical Industries Lahore		million
Development and Characterisation of natural fibre reinforced polymer composites	University of the Punjab	2015-2016	Rs. 0.15 million
Boron nitride nanoplatelet based thermosetting composite for thermal interface applications	University of the Punjab	2016-2017	Rs. 0.15 million
Synthesis of boron nitride nanosheets by chemical vapour deposition technique	University of the Punjab	2017-2018	Rs. 0.15 million
Synthesis of Graphene nanoplatelets and Development of Graphene nanoplatelet/polymer composites for electronics packaging and functional applications	**Higher Education Commission, Pakistan**	**2015-2019**	**Rs. 17 million**
Development of Lanthanum perovskite based electrodes for supercapacitor applications	University of the Punjab	2019-2020	Rs. 0.15 million
Study of Doped Metal oxides and their Composites as Electrode Materials for Supercapacitor Applications	University of the Punjab	2021-2022	Rs. 0.3 million
Development of Mn doped $ZnAl_2O_4$ spinel compounds for Supercapacitor Applications	University of the Punjab	2022-2023	Rs. 0.3 million

MPhil/MSc (Engg.) Projects Supervised

I have supervised following projects of MPhil Polymer technology and MSc (Engg.) Metallurgy and Materials Engineering during 2012 to date.

Name of Student	**Project title**
Muhammad Adnan Ashraf (MPE-14-11)	Production and functionalisation of surface modified cellulose fibre reinforced elastomers and thermosets
Muhammad Khalid Javed (MPE-32-11)	Production of nanocarbon, nanosilica and VGCNF based elastomer composites
Fahad Jamshed (MEE-05-11)	Fibre reinforced unsaturated polyester composites: Influence of carbon nanoparticles and fibre architecture on mechanical properties
Ayesha Khan	Synthesis and Characterisation of Polyanniline coated VGCNF based Epoxy Composites
Sumaira Nosheen (MPE-06-11)	Synthesis and Characterisation of Polypyrrole and Graphene/Polypyrrole/Epoxy composite

Asma Iftikhar (MPE-08-11)	Synthesis and Characterisation of Polypyrrole coated carbon nanofillers and nanocopper based polyester composites
Ghulam Abbas	Development and Characterisation of thermoplastic polyurethane and styrene butadiene styrene blends
Asad Ali (MME-14-16)	Development of Chemical Vapour deposition based graphene coating deposited on copper metal for corrosion protection
Hammad Afazal Awan (MME-14-01)	Functionalization of graphene oxide with maleated high oleic sunflower oil and graphene based acrylonitrile butadiene styrene composites
Zaeem ur Rehman	Synthesis of graphene and comparative study of graphene, graphene/polypyrole thin hybrid coatings for copper substrate
Abdur Rehman	Characterization and corrosion resistance behavior of rare earth magnets coated with graphene
Rumasa Kanwal	Comparative study of graphene coatings by different coating techniques on steel substrate
Muhammd Omer Yousaf	Electrochemical behavior of graphene oxide (GO) coatings on AZ31B magnesium alloy for biomedical applications
Main Muhammad Sohaib Sattar	Development and characterization of graphene reinforced acrylonitrile butadiene stryrene (ABS) composites via melt mixing method
Sehrish Talat (MME-15-04)	Electrochemical adsorption/characterization of methylene blue dye on graphene oxide coated platinum electrode
Umar Latif (MME-16-13)	Development of Doped Graphene Oxide-based Electrodes for Super capacitor
Hafiza Ulfat Javed (MME-17S-07) Dec. 2019	Mechanical properties of graphene oxide and magnetic particles reinforced polyanniline coated carbon fiber/epoxy hybrid composites
Muhammad Waris (Dec. 2019)	Mechanical properties of polypyrrole coated carbon fiber /graphene/magnetic particles/epoxy hybrid composites
Iqra Iqbal (Dec. 2019)	Development of biopolymer hydrogels for sustained drug release
Muhammad Younas (Nov. 2020)	Cu-Ag alloy nanoparticle/PDMS composites for thermal interface applications
Ali Naqi Awan (Nov. 2020)	Effect of deposition time on electrochemical properties of polyaniline-based electrodes developed for supercapacitor
Muhammad Adeel Ijaz Bhatti (Nov. 2020)	Nitrogen doped graphene oxide-based electrodes for supercapacitor applications
Muhammad Usman Sharif (Nov. 2020)	Boron doped graphene oxide-based electrodes for supercapacitor applications

Rafia Iqbal (MS-MME-07-F20) (May 2023)	Development of Antibacterial, Degradable Chitosan/Boron Nitride/PolyvinylAlcohol Blended Hydrogels for biomedical application
: Muhammad Huzaifa Tariq (MS-MME-08-F20) Dec. 2023	Development and characterization of cerium doped glasses
Muhammad Tasaduq Ilyas (MSc-MME-02F21) Dec. 2023	Development of binder free CuS electrodes for energy storage applications

BSc. (Engg.) Research Thesis Supervised

I have also supervised following B.Sc. (Engg) Metallurgy and Materials Engineering research projects at University of the Punjab, Lahore.

- Study of effect of reinforcement on tensile properties of polyester resin.
- Polymer coating (PVC and Nylon) on steel by fluidized bed coating technique.
- Development and characterization of Kevlar-epoxy composite.
- Development and characterization of Kevlar-polyester composites.
- Development of particulate SiC/Al Metal Matrix Composite.
- Diffusion Chromizing of steel.
- Synthesis of Carbon Nanotubes by Catalytic Chemical Vapor Deposition and optimisation of Process Parameters
- Influence of Carbon Black Nanoparticles on carburizing of Plain Carbon steel, 1024
- Synthesis of Graphene Via Electrochemical Route
- Synthesis and Electrochemical Characterisation of $La_{0.75}Sr_{0.25}Mg_xMn_{1-x}O_{3-d}$ (LSMMg) Perovskite for Fuel Cells Application
- Wet chemical method for development of the graphene like films by oxidation and reduction of carbon black
- Reduced graphene oxide/epoxy composite coatings and their electrochemical impedance study
- Synthesis of Mn doped lanthanum strontium bismuth ferrite and its electrochemical study in oxygen evolution reaction
- Effect of processing parameters and precursor graphite on the corrosion behavior of electrophoretically deposited graphene oxide coatings on copper metals
- Effect of graphene oxide coated-glass fibers on the mechanical properties of unsaturated polyester composites
- Synthesis and characterization of bismuth ferrite doped with chromium and manganese
- Mechanical properties of graphene oxide/epoxy composites
- Non-cyanide silver plating on copper alloy
- Synthesis of graphene by chemical vapor deposition (CVD) method
- Synthesis of graphene coating on stainless steel 316L via chemical vapour deposition
- Synthesis and characterization of composite coatings for electrochemical interference shielding and corrosion testing
- Synthesis and characterization of boron nitride nanosheets
- Synthesis of boron nitride nanosheets by liquid phase exfoliation and its coating on

copper substrate for corrosion protection
- Development of graphene oxide and glass fiber hybrid epoxy composites
- Enhancing strength of porous concrete using various fillers
- Corrosion study of graphene oxide coating deposited on magnesium AZ31B alloy developed for biomedical implants
- Studying the effect of precursor graphite on the thermal transport of graphene/silicone composites
- Boron nitride-based coatings for corrosion protection of metals
- Synthesis and characterization of Manganese oxide for supercapacitor applications
- Synthesis and characterization of zinc aluminate for supercapacitor applications
- Development of Manganese Doped Zinc Aluminate based electrode for supercapacitor applications
- Development and Characterization of hybrid fillers based heat producing paints.

List of Publications

Total publications in impact factor journals are 64 and total impact factor is ca. 234.

1. Nadeem A, Maqsood M.F, **Raza M.A**, et al., Thermally stable and anti-corrosive polydimethyl siloxane composite coatings based on nanoforms of boron nitride, Inorganic Chemistry Communications, Volume 168, 2024,112989 (impact factor = 2)

2. Latif U, **Raza, M.A** et al., Role of sulfur and phosphorous doping on the electrochemical performance of graphene oxide-based electrodes, Electrochimica Acta, Volume 497, 2024, p144581, (impact factor = 6.6)

3. Iqbal M. J, **Raza, M.A** et al., Long-range polymer ordering by directional coating to remarkably enhance the charge carrier mobility in PCDTPT-based organic field-effect transistors, R. Soc. Open Sci., Vol 11, Issue 4, 2024, p 11240153 (https://doi.org/10.1098/rsos.240153) (Impact factor: 3.5)

4. Maqsood FM, Mehdi SM, Rehman ZU, **Raza** MA, Effect of "Mn" substitution at B-site, on the crystal structure and energy storage performance of the La0.75Sr0.25CoO3 perovskite, Journal of Industrial and Engineering Chemistry, 2024 (impact factor = 6.1)

5. Tahmina Afzal, Mohsin Ali Raza et l., Tuning phase separation in DPPDTT/PMMA blend to achieve molecular self-assembly in the conducting polymer for organic field effect transistors, The Journal of Chemical Physics, 21 January 2024; 160 (3): 034902. https://doi.org/10.1063/5.0184290 (impact factor: 4.4)

6. Iqbal, M.J., **Raza** MA et al, On the optical tuning of the threshold voltage for DPPDTT-based organic field effect transistors, Journal of Materials Research 39, 565–575 (2024). https://doi.org/10.1557/s43578-023-01250-z (impact factor: 2.7)

7. Mansha, S.; Sajjad, A.; Zarbab, A.; Afzal, T.; Kanwal, Z.; Iqbal, M.J.; **Raza, M.A**.; Ali, S. Development of pH-Responsive, Thermosensitive, Antibacterial, and Anticancer CS/PVA/Graphene Blended Hydrogels for Controlled Drug Delivery. Gels 2024, 10, 205. https://doi.org/10.3390/gels10030205 (impact factor= 4)

8. Ilyas MT, Fazal A, Rehman ZU, **Raza MA**, Almutairi B.S, Iqbal MJ, Ali S, Substantial performance of copper sulfide nanotubes at high current densities for energy storage applications, Journal of Energy Storage, Volume 85, 2024, p111055 (impact factor=9.4)

9. **Raza M.A**, Latif U, Fazal A, Rehman H U et al., Synthesis and characterization of zinc aluminate electrodes for supercapacitor applications, Electrochimica Acta, Volume 475, 2024, p143501 (impact factor = 6.6).

10. Fazal A, Iqbal MJ, **Raza MA**, Binder-free hydrothermal approach to fabricate high-performance zinc phosphate electrode for energy storage applications, Ceramics International, 2023 (impact factor = 5.2)

11. Latif, U., Rehman, Z.U., Maqsood, M.F., **Raza, M.A**., Ali, S., Iqbal, M.J., Mehdi, Z.S.M. and Lee, N., In-Situ Growth of Nickel Ammonium Phosphate Ribbons and Their Electrochemical Study for Supercapacitor Applications, Journal of Energy Storage, 73 part B, (2023) *Impact factor= 9.4).

12. Zohaib, Muhammad, Tahmina Afzal, M. Zahir Iqbal, Badriah S. Almutairi, **Mohsin Ali Raza**, Muhammad Faheem Maqsood, M. Akram Raza, Saira Riaz, Shahzad Naseem, and M. Javaid Iqbal. (2023) "Role of time-dependent foreign molecules bonding in the degradation mechanism of polymer field-effect transistors in ambient conditions" Royal Society Open Science 10, no. 6 (2023): 221272 (impact factor = 3.653)

13. Kiani, M. N., Butt, M. S., Gul, I. H., Saleem, M., Irfan, M., Baluch, A. H., ... & **Raza, M. A**. (2023). Synthesis and Characterization of Cobalt-Doped Ferrites for Biomedical Applications. *ACS Omega*. (Impact factor = 4.132)

14. Maqsood, M. F., **Raza, M. A**., Rehman, Z. U., Tayyeb, A., Makhdoom, M. A., Ghafoor, F., ... & Khan, M. F. (October 2022). Role of Solvent Used in Development of Graphene Oxide Coating on AZ31B Magnesium Alloy: Corrosion Behavior and Biocompatibility Analysis. *Nanomaterials*, *12*(21), 3745. (Impact factor = 5.719)

15. Maqsood, M. F., Zubair, M. A. A., **Raza, M. A**., Mehdi, S. M. Z., Lee, N., Rehman, Z. U., ... & Tawakkal, A. (August 2022). Fabrication and characterization of graphene oxide and glass fiber-based hybrid epoxy composites. *Polymer Composites*, *43*(11), 8072-8083. (Impact factor = 3.39)

16. Latif, U., **Raza, M.A**., Rehman, Z.U., Iqbal, J., Lee, N., Mehdi, S.M.Z., Maqsood, M.F. and Hussain, S., 2022. Binder free heteroatom-doped graphene oxide as high energy density electrodes for supercapacitor applications. International Journal of Energy Research, 46, p(9643-9666) (impact factor: 5.164).

17. Rehman, Z.U., **Raza, M.A**., Chishti, U.N., Hussnain, A., Maqsood, M.F., Iqbal, M.Z., Iqbal, M.J. and Latif, U., 2022. Role of Carbon Nanomaterials on Enhancing the Supercapacitive Performance of Manganese Oxide-Based Composite Electrodes. *Arabian Journal for Science and Engineering*, pp.1-16 (impact factor: 2.807).

18. Ur Rehman, Z. and **Raza, M.A**., 2022. $La_{0.75}Sr_{0.25}Cr_{0.5}Mn_{0.5}O_3$/Graphene Oxide-Based Composite Electrodes for Energy Storage Applications. *Arabian Journal for Science and Engineering*, *47*(5), pp.6365-6377 (impact factor: 2.807).

19. Khan, M.U.A., Yaqoob, Z., Ansari, M.N.M., Razak, S.I.A., **Raza, M.A**., Sajjad, A., Haider, S. and Busra, F.M., 2021. Chitosan/Poly Vinyl Alcohol/Graphene Oxide Based pH-Responsive Composite Hydrogel Films: Drug Release, Anti-Microbial and Cell Viability Studies. Polymers, 13(18), p.3124 (impact factor: 4.329).

20. Khan, M.U.A., Iqbal, I., Ansari, M.N.M., Razak, S.I.A., **Raza, M.A**., Sajjad, A., Jabeen, F., Riduan Mohamad, M. and Jusoh, N., 2021. Development of Antibacterial, Degradable and pH-Responsive Chitosan/Guar Gum/Polyvinyl Alcohol Blended Hydrogels for Wound Dressing. Molecules, 26(19), p.5937 (impact factor: 4.41).

21. Iqbal, M.J., Iqbal, M.Z., Afzal, T., **Raza, M.A**., Saghir, K., Raza, M.A., Atiq, S., Riaz, S. and Naseem, S., Impact of interfacial trap states on achieving bias stability in polymer field-effect transistors. Microelectronic Engineering, 247, July 2021, p.111602 (impact factor: 2.523).

22. Maqsood, M.F., **Raza, M.A.**, Rehman, Z.U., Abid, M., Inam, A. and Iqbal, S.,. Corrosion Study of Zinc-Rich Epoxy Ester Paints For Cold Galvanizing Of Mild Steel. Surface Review and Letters (SRL), 28(07), July 2021, pp.1-11. (impact factor: 0.835).

23. Uddin, G.M., Joyia, F.M., Ghufran, M., Khan, S.A., **Raza, M.A**., Faisal, M., Arafat, S.M., Zubair, S.W.H., Jawad, M., Zafar, M.Q. and Irfan, M., Comparative performance analysis of cemented carbide, TiN, TiAlN, and PCD coated inserts in dry machining of Al 2024

alloy. The International Journal of Advanced Manufacturing Technology, 112(5), Jan 2021, pp.1461-1481. (impact factor: 3.35)

24. Khan M.U.A, Al-Arjan, W. S., Binkadem, M. S., Mehboob, H., Haider, A., **Raza, M. A** et al., Development of Biopolymeric Hybrid Scaffold-Based on AAc/GO/nHAp/TiO_2 Nanocomposite for Bone Tissue Engineering: In-Vitro Analysis. Nanomaterials, 11(5), May 2021, 1319. (impact factor: 4.03)

25. Nadeem A, Maqsood MF, **Raza M.A**, Ilyas M.T, Iqbal MJ, R ZU, Binder free boron nitride-based coatings deposited on mild steel by chemical vapour deposition: Anti-corrosion performance analysis, Physica B: Condensed Matter, Volume 602, Feb. 2021 (impact factor = 1.902)

26. Rehman ZU, **Raza M. A**, T Ahmed, Chishti UZ, Maqsood MF, et al., La0.75Sr0.25Cr0.5Mn0.5O3 perovskite developed for supercapacitor applications, Journal of Energy Storage, Volume 32, Dec. 2020, 101951. (impact factor: 3.7)

27. Khan MU, **Raza M.A,** et al., Development and in vitro evaluation of κ-carrageenan based polymeric hybrid nanocomposite scaffolds for bone tissue engineering, RSC advances, Issue 66, 6 Nov. 2020, 40529-40542 (impact factor: 3.07)

28. Nadeem, A., **Raza, M. A**., Maqsood, M. F., Ilyas, M. T., Westwood, A., & Rehman, Z. U. (2020). Characterization of boron nitride nanosheets synthesized by boron-ammonia reaction. Ceramics International, 46 (15.08.2020): 20415-20422 (https://doi.org/10.1016/j.ceramint.2020.05.132) (impact factor = 3.8)

29. **Raza MA**, Maqsood FM, Rehman ZU, Westwood A, Inam A, et al., Thermally Reduced Graphene Oxide-Reinforced Acrylonitrile Butadiene Styrene Composites Developed by Combined Solution and Melt Mixing Method, Arabian Journal for Science and Engineering, Aug. 2020, 45(11), 9559-9568 (impact factor= 1.71)

30. Khan MU, **Raza M.A,** et al., Novel functional antimicrobial and biocompatible arabinoxylan/guar gum hydrogel for skin wound dressing applications, Journal of Tissue Engineering and Regenerative Medicine, 14, Issue 10, 6th August, 2020, 1488-1501 (impact factor = 3.078)

31. Maqsood, M. F., **Raza, M. A**., Ghauri, F. A., Rehman, Z. U., & Ilyas, M. T. Corrosion study of graphene oxide coatings on AZ31B magnesium alloy, Journal of Coating Technology Research, 29 May 2020, (https://link.springer.com/article/10.1007/s11998-020-00350-3), (Impact factor = 1.815)

32. Afzal, T., Iqbal, M.J., Iqbal, M.Z., Sajjad, A., **Raza, M.A**., Riaz, S., Kamran, M.A., Numan, A. and Naseem, S., Effect of post-deposition annealing temperature on the charge carrier mobility and morphology of DPPDTT based Organic Field Effect Transistors. Chemical Physics Letters, 21st Apr 2020, p.137507 (impact factor = 2.029)

33. Inam, A., **Raza, M. A.,** Hafeez, M. A., Shah, S. B., Ishtiaq, M., Hassan, M. H., ... & Maqbool, A., Effect of voltage and spray–off distance of electric-arc spray technique on surface properties of nickel–chrome (Ni–Cr) coating developed on 304L stainless steel. Materials Research Express 7.1 (2020): 016525. (impact factor= 1.929)

34. Rehman ZU, **Raza MA**, Hussnain A, Chishti U, Inam A, Ali F, Maqsood MF, Effect of morphology of manganese oxide on the capacitive behavior of electrodes, Materials Research Express, 6 (6.11.2019) : 115552 (impact factor= 1.929)

35. **Raza, M. A**., Mujddid, M., Hussain, M., Ali, H. Q., Rehman, Z. U., & Inam, A. Mechanical properties of graphene oxide coated-glass fiber reinforced unsaturated polyester composites, Materials Research Express, 25.09.2019, 6:115303 (impact factor= 1.929)

36. Inam A, Ahmad R, **Raza MA**, Hassan A, Hafeez MA., Development of high strength austempered ductile iron (ADI) from conventional pig iron, Materials Research Express, 11.09.2019, 6: 1065c7 (Impact factor= 1.928)

37. **Raza MA**, Westwood AVK, Thermal contact resistance of various carbon nanomaterial-based epoxy composites developed for thermal interface applications, Journal of Materials Science: Materials in Electronics, 29.04.2019, 30 (11): 10630-10638 DOI: 10.1007/s10854-012-0674-0 (IF= 2.220)

38. Uddin GM, Jawad M, Ghufran M, Saleem MW, **Raza MA**, Rehman ZU, et al., Experimental investigation of tribo-mechanical and chemical properties of TiN PVD coating on titanium substrate for biomedical implants manufacturing, The International Journal of Advanced Manufacturing Technology, 7.01.2019, 102 (5-8), 1391-1404 (10.1007/s00170-018-03244-2.) (IF= 2.63)

39. Asgar H, Deen KM, Rahman ZU, Shah UH, **Raza MA**, Haider W, Functionalized graphene oxide coating on Ti6Al4V alloy for improved biocompatibility and corrosion resistance, Materials Science and Engineering C, 2019, 94, 920-928 (IF= 5.88)

40. Ali QA **, Raza MA**, Westwood A, Ghauri FA, Asgar H, Development and mechanical characterization of composites based on unsaturated polyester reinforced with maleated

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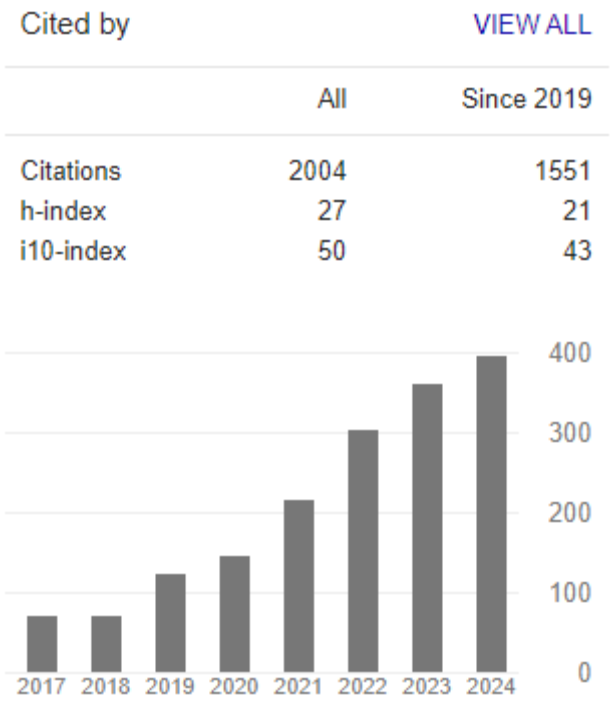

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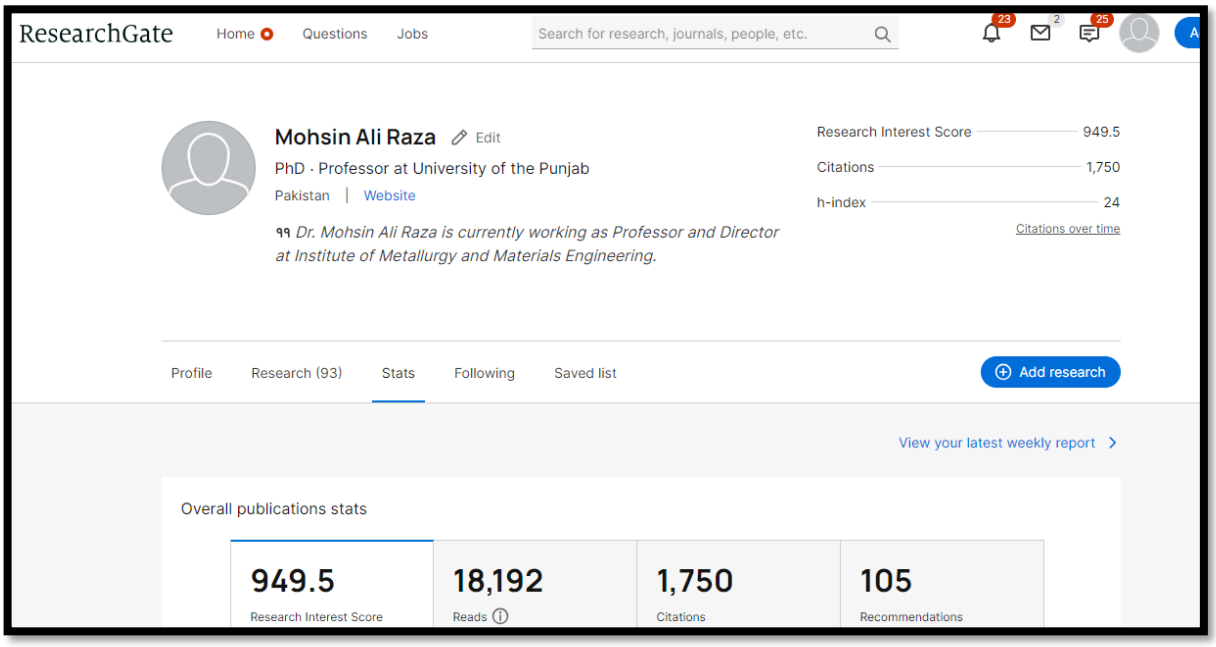

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Reviewer for Journals

I reviewed papers regularly for the following journals:

- Composites Part A
- Materials and Design
- ACS applied materials and science
- Journal of applied polymer science
- Thermochemica Acta
- The Journal of Adhesion
- Journal of reinforced plastics and composites
- Materials Research Express
- Applied Thermal Engineering
- Polymer composites
- Surface and Coatings Technology
- Carbon
- Helyion

Lab Manuals

Developed laboratory manuals for following B.Sc. (Engg) Metallurgy and Materials Engineering courses:

- Composite and Polymeric Materials
- Engineering Ceramics and glasses
- Mineral Processing
- Surface Engineering and Tribology
- Materials Characterization

Membership

- Program Evaluator of OBE accreditation for Pakistan Engineering Council.
- Member National Curriculum Revision Committee of Higher Education Commission for Metallurgy and Materials Engineering (2017).
- Registered member of Pakistan Engineering Council.
- Member American Ceramic Society.
- Member of Faculty Board of Studies.
- Member/Convener of Board of Studies of Institute of Metallurgy and Materials Engineering.
- Member of Board of Faculty of Chemical and Materials Engineering

- Member and Convener of Doctoral Program Committee of Institute of Metallurgy and Materials Engineering.
- Served as Member and Secretary Technical Committee constituted for looking after the matters of purchase of new equipment under HEC sponsored umbrella project "Capacity Building and Upgradation of Selected Departments at University of the Punjab, Lahore".
- Member Pakistan Institute of Metallurgical Engineers

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