

# Curriculum Vitae

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## **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** (1<sup>st</sup> 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.**

(1<sup>st</sup> 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 (1<sup>st</sup> class)

### **Professional Experience/Current Job**

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

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- **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**

- 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 Characterisation Labs** including SEM, XRD and AFM labs at Department of Metallurgy and Materials Engineering, CEET, University of the Punjab.
- I played a **pivotal role in the upgradation of laboratories** of Department of Metallurgy and Materials Engineering, CEET, 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 fellowship because I had to quit my job in Pakistan to avail these offers, which I didn't want to do. I preferred to serve my own country.

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- I was awarded scholarship in 2005 from Higher Education Commission of Pakistan for MSc. Engineering studies at Royal Institute of Technology (KTH), Stockholm, Sweden.
- Played a key role in establishment of State-of-the-art materials characterization labs at Institute of Metallurgy and Materials Engineering.
- Actively participated in curriculum development of B.Sc. (Engg) and PhD (Engg) Metallurgy and Materials Engineering.

## **PhD Supervision**

I am supervising four PhD students. The title of their projects are given below:

- Development of Graphene-based composite electrodes for energy storage
- Synthesis and characterization of boron nitride nanosheets based coatings on metallic substrates and to study their corrosion behavior
- Development of graphene-based carbon fiber reinforced hybrid polymer composites for aerospace applications
- Development of graphene-based thermosetting polymer hybrid composites for functional applications

## **Research Interests**

- Processing and characterisation of polymer and their nanocomposites.
- Synthesis and characterisation 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 perovskite 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

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- 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

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- 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.

| <b>Project</b>   | <b>Funding Body</b>                          | <b>Year</b>      | <b>Amount</b>         |
|--|--|------------------|-----------------------|
| 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 Chemical Industries Lahore        | 2013-2014        | Rs. 0.05 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      |
| <b>Synthesis of Graphene nanoplatelets and Development of Graphene nanoplatelet/polymer composites for electronics packaging and functional applications</b> | <b>Higher Education Commission, Pakistan</b> | <b>2015-2019</b> | <b>Rs. 17 million</b> |
| Development of Lanthanum perovskite based electrodes for supercapacitor applications   | University of the Punjab                     | 2019-2020        | Rs. 0.15 million      |

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### 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.

| <b>Name of Student</b>            | <b>Project title</b>   |
|-----------------------------------|--|
| 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/polypyrrole 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 styrene (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   |

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| 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  |

### **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  $\text{La}_{0.75}\text{Sr}_{0.25}\text{Mg}_x\text{Mn}_{1-x}\text{O}_{3-d}$  (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

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- 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

### List of Publications

Total publications in impact factor journals are 41 and total impact factor is 140.

1. 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<sub>2</sub> Nanocomposite for Bone Tissue Engineering: In-Vitro Analysis. *Nanomaterials*, 11(5), May 2021, 1319. (impact factor: 4.03)
2. 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)
3. Rehman ZU, **Raza M. A**, T Ahmed, Chishti UZ, Maqsood MF, et al., La<sub>0.75</sub>Sr<sub>0.25</sub>Cr<sub>0.5</sub>Mn<sub>0.5</sub>O<sub>3</sub> perovskite developed for supercapacitor applications, *Journal of Energy Storage*, Volume 32, Dec. 2020, 101951. (impact factor: 3.7)
4. 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)



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5. 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)
6. **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)
7. Khan MU, **Raza M.A**, et al., Novel functional antimicrobial and biocompatible arabinosylan/guar gum hydrogel for skin wound dressing applications, *Journal of Tissue Engineering and Regenerative Medicine*, 14, Issue 10, 6<sup>th</sup> August, 2020, 1488-1501 (impact factor = 3.078)
8. 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)
9. 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*, 21<sup>st</sup> Apr 2020, p.137507 (impact factor = 2.029)
10. 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)
11. 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)
12. **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)

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13. 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)
14. **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)
15. 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)
16. 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)
17. Ali QA , **Raza MA**, Westwood A, Ghauri FA, Asgar H, Development and mechanical characterization of composites based on unsaturated polyester reinforced with maleated high oleic sunflower oil-treated cellulose fiber, *Polymer Composites*, 2019, 40(3): 901-908 (IF=2.265).
18. **Raza MA**, Rehman ZU, Ghauri FA, Corrosion study of silane-functionalized graphene oxide coatings on copper, *Thin Solid Films*, 1.10.2018, 663 (1),93-99 (IF=2.03).
19. Rehman ZU, **Raza MA**, Ghauri FA, Kanwal R, Ahmad Akhlaq, Inam A, Graphene Oxide Coatings Deposited on Steel Substrate Using Electrophoretic Deposition and Electrochemical Evaluation of Coatings in Saline Media, *Key Engineering Materials*, 2018, 778, 111-117.
20. **Raza MA**, Westwood AVK, Stirling C., Graphite nanoplatelet/rubbery epoxy composites as adhesives and pads for thermal interface applications, *Journal of Materials Science: Materials in Electronics*, 15.03.2018, 29 (10): 8822 DOI: 10.1007/s10854-012-0674-0 (IF= 2.22)
21. **Raza MA**, Ali A, Ghauri FA, Baig MS, Ibrahim S, Corrosion study of the graphene oxide and reduced graphene oxide-based epoxy coatings, *Materials Research Express*, 4.12.2017; 4(1), 125601 (IF=1.929)

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22. **Raza MA**, Ali A, Ghauri FA, Aslam A, Yaqoob K, Wasay A, Electrochemical behavior of graphene coatings deposited on copper metal by electrophoretic deposition and chemical vapour deposition, *Surface and Coatings Technology*, 25.12.2017; 332; 112-119 (IF= 3.784)
23. **Raza MA**, A Akhlaq, Ghauri FA, Rehman A, Ahmad R, Graphene oxide coating for improved corrosion resistance of NdFeB magnets, *Nust Journal of Engineering Sciences*, 2017;1; 14-18 (HEC recognized local Journal, X-category)
24. **Raza MA**, Rehman ZU, Ghauri FA, Ahmad A, Ahmad R, Raffi M, Corrosion study of electrophoretically deposited graphene oxide coatings on copper metal, *Thin Solid films*, 1.12.2016; 621;150-159 (IF=2.03)
25. **Raza MA**, Asgar H, Abdullah A, Ahmad R, Inam A, Ghauri FA, Carburising of Low-Carbon Steel Using Carbon Black Nanoparticles, *Arabian Journal for Science and Engineering*, 8.06.2016;41(11): 4661-4667. (IF=1.711)
26. Nosheen S, Raza **MA**, Alam S, Irfan M, Iftikhar A, Iftikhar F, Waseem B, Synthesis and Characterization of Polypyrrole and Graphene/Polypyrrole/Epoxy Composites, *Arabian Journal for Science and Engineering*, 3.6.2016;42(1) 193-199 (IF=1.711)
27. **Raza MA**, Westwood A, Stirling C. Comparison of carbon nanofiller-based polymer composite adhesives and pastes for thermal interface applications. *Materials & Design*. 15.11.2015;85(0):67-75. (IF=6.289)
28. **Raza MA**, Westwood A, Stirling C. Effect of boron nitride addition on properties of vapour grown carbon nanofiber/rubbery epoxy composites for thermal interface applications, *Composite Science and Technology*, 4.12.2015;120:9-16 (IF=7.094)
29. **Raza MA**, Deen KM, Awan HA, Ahmad R, Husnain A. Synthesis and Characterization of  $\text{La}_{0.75}\text{Sr}_{0.25}\text{Mn}_{1-x}\text{Mg}_x\text{O}_{3-\delta}$  Perovskite for Alkaline Fuel Cell, *Materials Today: Proceedings*, 2015;10:2:5522-5527.
30. Deen KM, Farooq A, **Raza MA**, Ahmad R, Haider W, Estimating the degradation of methylethionium chloride dye on nanotubular  $\text{TiO}_2$  structure, *Journal of Industrial and Engineering Chemistry*, 25.02.2015;22 (0), 153-158 (IF= 5.278)
31. **Raza MA**, M.S.Awan, A. Farooq, R. Ahmad, A.Inam, Production of Carbon nanomaterials via catalytic chemical vapour deposition method and their corrosion protection performance in epoxy based coating, *Proceedings of 14<sup>th</sup> International Symposium on Advanced Materials*, Islamabad, Pakistan, 12-16<sup>th</sup> October 2015.

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32. Deen KM, Farooq A, **Raza MA**, Haider W, Effect of electrolyte composition on TiO<sub>2</sub> nanotubular structure formation and its electrochemical evaluation, *Electrochimica Acta*, 20.01.2014;117:329-335 (IF = 6.215)
33. **Raza MA**, Ashraf MA, Westwood AVK, Jamil T, Ahmad R, Inam A, Deen KM, Maleated high oleic sunflower oil-treated cellulose fiber-based styrene butadiene rubber composites, *Polymer Composites*, 2016; 37(4), 1113–1121 (Article first published online: 27 OCT 2014), DOI: 10.1002/pc.23273 (IF=2.265)
34. Farooq A, Deen KM, Khan IH, **Raza MA**, Ahmad R, Salam A, Haider W, Peculiar corrosion behavior of type 316L SS in simulated cooling water at various pH values, *Materials Performance, NACE International*, 01.10.2014;53 (10):44-47 (IF= 0.1)
35. Rahman IZ, **Raza MA**, Rahman MA, Perovskite based anode materials for solid oxide fuel cell application: A Review. *Advanced Materials Research*, 2012;445:497-502 (ISSN: 1662-8985), DOI 10.4028/www.scientific.net/AMR.445.49
36. **Raza MA**, Westwood A, Stirling C. Effect of processing technique on the transport and mechanical properties of vapour grown carbon nanofibre/rubbery epoxy composites for electronic packaging applications. *Carbon*. 1.01.2012;50(1):84-97.(IF=8.821)
37. **Raza MA**, Westwood A, Stirling C. Carbon black/graphite nanoplatelet/rubbery epoxy hybrid composites for thermal interface applications. *Journal of Materials Science*. 7.9.2011;47(2):1059-70.(IF=3.553)
38. **Raza MA**, Westwood AVK, Stirling C. Effect of processing technique on the transport and mechanical properties of graphite nanoplatelet/rubbery epoxy composites for thermal interface applications. *Materials Chemistry and Physics*. 16.01.2012;132(1):63-73. (IF= 3.40)
39. **Raza MA**, Westwood AVK, Brown AP, Stirling C. Texture, transport and mechanical properties of GNP/silicone composites produced by three roll mill. *Composites Science and Technology*. 7.02.2012 ;72(3):467-75.(IF= 7.094)
40. **Raza MA**, Westwood AVK, Brown AP, Stirling C., Performance of graphite nanoplatelet/silicone composites as thermal interface adhesive, *Journal of Electronics materials: Materials in Electronics*, 08.03.2012;23(10) pp 1855-1863, DOI: 10.1007/s10854-012-0674-0 (IF= 2.22)

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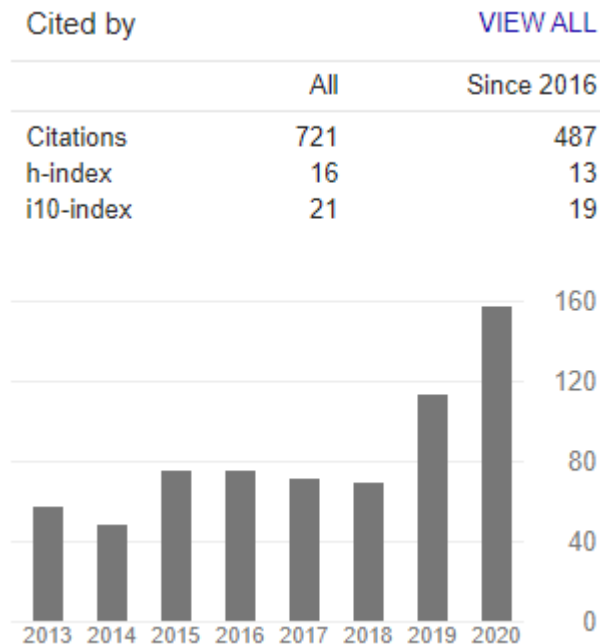
41. **Raza MA**, Westwood AVK, Stirling C., Brydson R, Hondow N, Effect of nanosized carbon black on the morphology, transport and mechanical properties of rubbery epoxy and silicone composites, *Journal of Applied Polymer Science*, 09.04.2012;126(2):641-652. (IF= 2.188)
42. **Raza MA**, Westwood AVK, Brown AP, Hondow N, Stirling C., Graphite nanoplatelets produced by oxidation and thermal exfoliation of graphite and electrical conductivities of their epoxy composites, *J. Nanosci. Nanotechnol* 12, 01.12.2012, 9254-9258 (IF=1.354).
43. **Raza MA**, Westwood A, Brown A, Hondow N, Stirling C. Characterisation of graphite nanoplatelets and the physical properties of graphite nanoplatelet/silicone composites for thermal interface applications. *Carbon*. 01.11.2011;49(13):4269-79. (IF= 8.821)
44. **Raza MA**, Westwood AVK, Stirling C, Hondow N. Transport and mechanical properties of vapour grown carbon nanofibre/silicone composites. *Composites Part A: Applied Science and Manufacturing*. 1.10.2011;42(10):1335-43. (IF=6.44)
45. **Raza MA**, Westwood AVK, Stirling C. Graphite nanoplatelet/silicone composites for thermal interface applications. *Advanced Packaging Materials: Microtech, 2010 APM '10 International Symposium on*; 2010 Feb. 28 2010-March 2 2010; 2010. p. 34-48. doi: 10.1109/ISAPM.2010.5441382 (IEEE proceedings).
46. **Raza MA**, Rahman IZ, Beloshapkin S. Synthesis of nanoparticles of  $\text{La}_{0.75}\text{Sr}_{0.25}\text{Cr}_{0.5}\text{Mn}_{0.5}\text{O}_{3-\delta}$  (LSCM) perovskite by solution combustion method for solid oxide fuel cell application. *Journal of Alloys and Compounds*. 19.10.2009;485(1-2):593-7. (Impact Factor =4.65)
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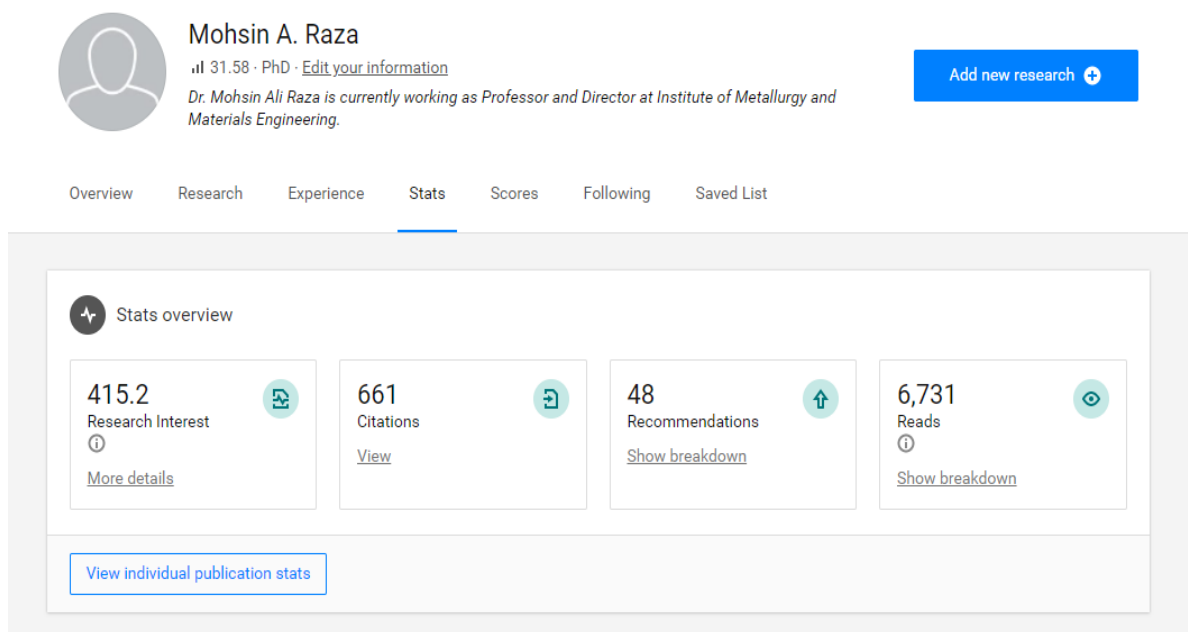
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## Conference presentations

1. **Raza MA**, Effect of precursor graphite on the thermal contact resistance of thermally reduced graphene oxide/silicone composites developed for thermal interface applications, 16<sup>th</sup> International Symposium on Advanced Materials, 21-25<sup>th</sup> Oct, 2019, Islamabad, Pakistan.
2. Rehman ZuU, **Raza MA**, Naveed U, Hussain A, Ali F, Manganese oxide-based hybrid electrodes for supercapacitor applications, 16<sup>th</sup> International Symposium on Advanced Materials, 21-25<sup>th</sup> Oct, 2019, Islamabad, Pakistan.
3. Latif U, **Raza MA**, Rehman ZU, Development of doped graphene oxide-based electrodes for Supercapacitor, 16<sup>th</sup> International Symposium on Advanced Materials, 21-25<sup>th</sup> Oct, 2019, Islamabad, Pakistan.
4. Maqsood FM, **Raza MA**, Rehman ZU, Abid M, Corrosion study of epoxy ester-based Zn rich paints for cold galvanizing of mild steel, 16<sup>th</sup> International Symposium on Advanced Materials, 21-25<sup>th</sup> Oct, 2019, Islamabad, Pakistan.
5. **Raza MA**, Mujadid M, Hussain M, Rehman ZU, Graphene oxide coated-glass fibers reinforced unsaturated polyester composites, World nanotechnology conference 2019, 15-17 April 2019, Dubai, UAE

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6. **Raza MA**, Rehman ZU, Ghauri FA, Corrosion study of silane-functionalized graphene oxide coatings on copper, 45<sup>th</sup> International conference on Metallurgical coatings and Thin Films, 23-28 April 2018, San Diego, CA, USA.
7. **Raza MA**, Westwood A, Stirling C, Thermal contact resistance of various carbon nanomaterial-based epoxy composites developed for thermal interface applications, Carbon 2018, 1-6th July 2018, Madrid, Spain.
8. Butt MTZ, **Raza MA**, Ghauri FA, Waris M, Westwood A, Mechanical Properties and corrosion behaviour of functionalised graphene oxide-reinforced Epoxy Composites, Carbon 2018, 1-6th July 2018, Madrid, Spain.
9. **Raza MA**, Ghauri FA, Graphene as anticorrosive coatings for metals and filler for polymer composites, Fourth Frontiers of Advanced Materials Conference, 19-20<sup>th</sup> Feb, 2018, PCSIR, Lahore, Pakistan.
10. **Raza MA**, Corrosion behaviour of graphene oxide coatings on AZ31B Magnesium Alloy, 8-12 Oct 2017, MS&T 2017, Pittsburgh, Pennsylvania, USA
11. Talat S, **Raza MA**, Ghauri FA, Nisa S, Electrochemical adsorption of methylene blue on platinum coated with graphene oxide, Third International Conference on Engineering Sciences, 21-22 Dec 2017, University of the Punjab, Lahore, Pakistan.
12. Rana MM, **Raza MA**, Hussain M, Nisa S, Effect of graphene oxide coated-glass fibers on the mechanical properties of unsaturated polyester composites, Third International conference on Engineering Science, 21-22 Dec. 2017, University of the Punjab, Lahore, Pakistan.
13. Rais A, Niaz S, **Raza MA**, Ghauri FA, Effect of processing parameters and precursor graphite on the corrosion behavior of electrophoretically deposited graphene oxide coatings on copper metal, Third International conference on Engineering Science, 21-22 Dec. 2017, University of the Punjab, Lahore, Pakistan.
14. **Raza MA**, Ghauri FA, Nisa S, Driving two dimensional graphene-like sheets from carbon black and its characterization, International Conference on Solid State Physics, 10-14 Dec 2017, University of the Punjab, Lahore, Pakistan.
15. Rehman ZU, **Raza MA**, Kanwal R, Ghauri FA, Graphene oxide coatings deposited on steel substrate using electrophoretic deposition and electrochemical evaluation of



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- coatings in saline media, 15<sup>th</sup> International Symposium on Advanced Materials, 13-18 Oct 2017, Islamabad, Pakistan.
16. **Raza MA**, Sattar MSS, Ghauri FA, Development and Characterization of Graphene Reinforced Acrylonitrile Butadiene Styrene (ABS) Composites via Combined Solution and Melt Mixing Method, 15<sup>th</sup> International Symposium on Advanced Materials, 13-18 Oct 2017, Islamabad, Pakistan.
  17. **Raza MA**, , Westwood A, Stirling C, Graphite nanoplatelet/carbon nanofiber-based hybrid epoxy composites for thermal interface applications, Carbon 2017, 23-28 July 2017, Melbourne, Australia.
  18. **Raza MA**, Ali HQ, Ghauri FA, Role of graphene on the properties of cellulose fibre/polyester composites, Carbon 2017, 23-28 July 2017, Melbourne, Australia.
  19. **Raza MA**, Ali A, Ghauri FA, Aslam A, Yaqoob K, Wasay A, Electrochemical behavior of graphene coatings deposited on copper metal by electrophoretic deposition and chemical vapour deposition, 44<sup>th</sup> International conference on Metallurgical coatings and Thin Films, 23-28 April 2017, San Diego, CA, USA.
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  21. **Raza MA**, Ghauri FA, Ahmad A, Ahmad R, Corrosion Study of Electrophoretically Deposited Graphene Oxide Coatings on Copper Metal, 43<sup>rd</sup> International conference on Metallurgical coatings and Thin Films, 24-29 April 2016, San Diego, CA, USA.
  22. **Raza MA**, Ghauri FA, Abbas J, Abid M, Corrosion behaviour of cold galvanized steel in organic compounds found in soil, 6<sup>th</sup> symposium on engineering sciences, Institute of chemical engineering and technology, University of the Punjab, 21-22 Dec, 2016, Lahore, Pakistan.
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26. **Raza MA**, Shahroz M, Ghauri FA, Ghauri KM, Ahmad A, Ahmad R, Effect of Precursor Graphite on the Corrosion Protection Ability of Graphene Oxide Coatings on Copper Metal, International conference on Advanced Materials and Emerging Technologies, UET, 28-29 Nov. 2016, Lahore, Pakistan.
27. **Raza MA**, Ali HQ, Ghauri FA, Ahmad R, Kazmi S, Effect of Maleated High Oleic Sunflower Oil treatment on the properties of chopped cellulose fiber reinforced composites, International conference on Advanced Materials and Emerging Technologies, UET, 28-29 Nov. 2016, Lahore, Pakistan.
28. **Raza MA**, Rehman A, Ghauri FA, Ahmad A, Ahmad R, Graphene coatings for improved corrosion resistance of NdFeB magnets, Conference of Emerging Materials and Processes (CEMP), 22-23<sup>rd</sup> Dec, 2015, SCME, NUST, Islamabad.
29. **Raza MA**, M.S.Awan, A. Farooq, R. Ahmad, A.Inam, Production of Carbon nanomaterials via catalytic chemical vapour deposition method and their corrosion protection performance in epoxy based coating, 14<sup>th</sup> International Symposium on Advanced Materials, Islamabad, Pakistan, 12-16<sup>th</sup> October 2015.
30. **Raza MA**, Westwood A, Stirling C, Ahmad R, Boron nitride/vapour grown carbon nanofibre/rubbery epoxy-based hybrid composites for thermal interface applications, Fourth International Conference on Multifunctional, Hybrid and Nanomaterials, 9-13 March 2015, Sitges (near Barcelona), Spain.
31. **Raza MA**, Westwood A, Stirling C, Ahmad R, Comparison of Thermal Interfacial Performance of Carbon Nanofiller-Based Polymer Composites, Carbon 2013, Windsor Atlântica Hotel – Copacabana Beach – Rio de Janeiro, 14-19 July, 2013
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39. Rahman, I.Z. and **Raza M.A.**, A Review on Perovskite Based Anode Materials for Solid oxide Fuel Cell application. 3<sup>rd</sup> International Conference on Sustainable Energy and Environmental Protection, SEEP 2009, Dublin, 12-15 August 2009.
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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

# Curriculum Vitae

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- Polymer composites
- Surface and Coatings Technology
- Carbon

## **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**

- 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 of Board of Studies of Department of Metallurgy and Materials Engineering.
- Member of Board of Studies of Department of Textile Engineering.
- Member Departmental Curriculum Committee.
- Member and Coordinator of Doctoral Program Committee of Department of Metallurgy and Materials Engineering.
- 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

## **References**

Available on request.