

Engr. Muhammad Azeem Munawar

Research Interests

Polymer Synthesis, Rheology, Processing and Characterization, Polymer reaction kinetics, Hybrid, Graphene, Green and Nano-Composites, Membrane Technology using Reverse Osmosis, Pervaporation & Desalination, Responsive and Biopolymers.

Executive Profile

Chemical/Polymer Engineering Professional with solid experience of approximately **FOUR** years in R & D, management, production and teaching. Currently, I am part of Punjab University as research scholar, teaching various lab courses to graduate and post graduate students and also managing departmental administrative activities covering all matters. I have also worked on projects of Higher Education Commission (HEC) Pakistan as research technician; I was responsible for an end to end delivery of Turnkey and Non Turnkey projects.

List of Publications (Total Impact Factor: 24.312)

1. Atif Islam, Tariq Yasin, Nafisa Gull, Shahzad Maqsood Khan, Aneela Sabir, **Muhammad Azeem Munawar**, Muhammad Shafiq, Tahir Jamil, Muhammad Hamid Raza. "Fabrication and performance characteristics of tough hydrogelscaffolds based on biocompatible polymers". **International Journal of Biological Macromolecules**, (I.F. = 3.138).
2. **Munawar MA**, Khan SM, Gull N, Shafiq M, Islam A, Zia S, Sabir A, Ghouri AS, Butt MTZ, Jamil T. Fabrication and characterization of novel zirconia filled glass fiber reinforced polyester (GFRP) hybrid composites. **Journal of Applied Polymer Science (2016)**, DOI: 10.1002/app.43615. (I.F. = 1.866).
3. Khan SM, Gull N, **Munawar MA**, Zia S, Anjum A, Iqbal MS, Shafiq M, Islam A, Butt MA, Butt MTZ, Jamil T. A study on effect of Carbon Fiber layers on thermal, mechanical and microscopic properties of Polyphenylene Sulphide/Carbon fiber composites **Iranian Polymer Journal (I. F 1.684)**.
4. Khan SM, Gull N, **Munawar MA**, Islam A, Zia S, Shafiq M, Sabir A, Awais SM, Butt MA, Butt MTZ, Jamil T. 2D Carbon Fiber Reinforced High Density Polyethylene Multi-layered Laminated Composite Panels: Structural, Mechanical, Thermal and Morphological Profile **Journal of Materials Science & Technology (I.F= 2.267)**.
5. Anjum F, Gull N, Khan SM, **Munawar MA**, Islam A, Niazi SI, Zia S, Shafiq M, Butt MTZ, Jamil T. Mechanical and thermal profile of novel glass fiber reinforced polyester composites as a function of barium sulphate loading. **Advances in Polymer Technology (I.F. = 1.114)**.
6. Younas Habib Khan, Atif Islam, Afsheen Sarwar, **Nafisa Gull**, Shahzad Maqsood Khan Muhammad Azeem Munawar, Saba Zia, Aneela Sabir, Muhammad Shafiq, Tahir Jamil. "Novel green nano composites films fabricated by indigenously synthesized graphene oxide and chitosan". **Carbohydrate Polymers**, 146 (2016) 131-138. <http://dx.doi.org/10.1016/j.carbpol.2016.03.031>. (I.F. = 4.219).
7. Gull N, Khan SM, Islam A, Zia S, Shafiq M, Sabir A, **Munawar MA**, Butt MTZ, Jamil T Effect of Different Oxidizing Agents on Polyaniline/Single Walled Carbon Nanotube Composites synthesized via Ultrasonically Initiated in-situ Chemical Polymerization **Materials Chemistry and Physics** 172 (2016) 39-46 (I.F. = 2.101).
8. Islam A, Yasin T, Gull S, Khan SM, **Munawar MA**, Shafiq M, Sabir A, Jamil T Evaluation of selected properties of biocompatible chitosan/poly (vinyl alcohol) blends **International Journal of Biological Macromolecules** 82 (2016) 551–556 (I.F. = 3.138.).
9. Islam A, Imran Z, Yasin T, Gull N, Khan SM, Shafiq M, Sabir A, **Munawar MA**, Raza MH, Jamil T. An investigation of AC impedance and dielectric spectroscopic properties of conducting chitosan-silane crosslinked-poly (vinyl alcohol) blended films **Materials Research (2015) (I.F. = 0.788)** 10.1590/1516-1439.043715; Page 1-8.
10. Gull N, Khan SM, **Munawar MA**, Shafiq M, Anjum F, Butt MTZ, Jamil T. Synthesis and characterization of zinc oxide (ZnO) filled glass fiber reinforced polyester composites **Materials and Design** 67 (2015) 313–317, (I.F. = 3.997)

11. Ghouri AS, Noor S, Munawar MA. Production of Ethanol from Quetta Pinus halepensis by Fermentation. **Journal of Chemical Engineering and Process Technology**, 6 (2015) 1-4.
12. Polymer Fiber Composites; A prodigious breakthrough in Medical Arena. Article submitted in **Pakistan Plastic Manufacturing Association (PAK PLAS)** Shahzad Maqsood Khan, **Muhammad Azeem Munawar**, Saba Zia, Prof. Dr. Muhammad Taqi Zahid Butt, Prof. Dr. Tahir Jamil **2015**.
13. Polymers: A prodigious Revolution in Medical Arena, Shahzad Maqsood Khan, Muhammad Azeem Munawar, Saba Zia, Prof. Dr. Muhammad Taqi Zahid Butt, Prof. Dr. Tahir Jamil, **Pakistan Plastic Manufacturers Association (PAK PLAS)**, Pg 91 & 93, **2014**.

Under Review Articles

1. Atif Islam, Tariq Yasin, Nafisa Gull, Shahzad Maqsood Khan, **Muhammad Azeem Munawar**, Aneela Sabir, Muhammad Shafiq, Tahir Jamil, Muhammad Hamid Raza. "Electrospun nanofibrous scaffolds materials from γ -irradiated chitosan and PVA for biomedical applications". **Iranian Journal of Chemistry and Chemical Engineering**, (Under Review) (I.F. = 0.325).
2. Shahzad Maqsood Khan, Nafisa Gull, **Muhammad Azeem Munawar**, Muhammad Shafiq, Atif Islam, Muhammad Taqi Zahid Butt, Tahir Jamil. "A study on fabrication of high density polyethylene/glass fiber composite for load bearing applications: Mechanical, thermal and surface properties". **Materials Research**, (Submitted) (I.F. = 0.793).
3. Aneela Sabir, Wail Falath, Karl I Jacob, Muhammad Shafiq, Nafisa Gull, Atif Islam, **Muhammad Azeem Munawar** Muhammad Taqi Zahid Butt, Tahir Jamil. "High performance and chlorine resistant PVA/DGEBA crosslinked TFN-RO membranes infused with Pluronic F127/ZnO-NPs using natural sea salt for desalination". **Materials Chemistry and Physics**, (Submitted) (I.F. = 2.259)
4. Aneela Sabir, Wail Falath, Karl I Jacob, Muhammad Shafiq, **Muhammad Azeem Munawar**, Atif Islam, **Nafisa Gull**, Muhammad Taqi Zahid Butt, Tahir Jamil. "Hyperbranched polyethyleneimine a polycation induced zwitterionic membranes for improved fouling resistance and high RO performance". **Polymer**, (Submitted) (I.F. = 3.562).

Research Experience and Projects Completions

- Engaged in R & D for synthesis and characterization polystyrene (PS), poly methyl methacrylate (PMMA), Polyvinyl acetate (PVA) and their blends using suspension and emulsion polymerization.
- Synthesis and characterisations of polymeric membranes using reverse osmosis and pervaporation separation techniques for purification of water and gases.
- Hybrid Composites, Nano composites, Ballistic composites and Green composites for automobiles, aerospace, defence and biomedical applications.
- Characterisation with different sophisticated analytical techniques i.e. gel permeation chromatography (GPC), thermogravimetric analyzer (TGA), differential scanning calorimeter (DSC) and thermo mechanical analyzer (TMA), Fourier transform infrared (FTIR), tensile tester, pendulum impact tester, tubular impact tester, hardness tester, rheometer, spindle and kerb viscometers, etc. for characterisations of polymers, their intermediates and monomers.

Trainings & Seminars

- Participation in International Conference of Chemical Society of Pakistan, Institute of chemistry, University of the Punjab, Lahore, Pakistan **Oct 20-22, 2014**
- Chromatography Techniques & Sample Preparation Seminar Agilent Technologies **Jan 23, 2014**
- Participation in International Workshop on Sustainable Energy and Membrane Systems for Desalination and Water Reuse, National University of Sciences and Technology (NUST), Islamabad, Pakistan. **Dec 10-11, 2013**
- Short course on porous carbon materials & polymer fiber composites Pakistan Institute of Engineering & Applied Sciences (PIEAS) Department of Nuclear Engineering **May 28-30, 2013**
- Participation in a National Seminar on Engineering Materials & their performance, University of the Punjab, Lahore, Pakistan. **April 30, 2013**

Scholastic Record

Date	Degree and Institution	Core subject / Thesis
2016-2020 (On study leave)	Phd in Polymer Engineering Department of Materials Science & Engineering, Friedrich-Alexander-University, Erlangen-Nuremberg, Germany.	
2011-2013	M.Phil - Polymer Technology Department of Polymer Engineering and Technology, University of the Punjab, Lahore, Pakistan.	Polymer synthesis & characterisation, Polymer rheology & processing, Polymer reaction kinetics, Polymer processing technologies, Advance polymer & composites, Membrane technology and Elastomeric materials. Thesis: Synthesis and characterization of fiber reinforced polymer composites for biomedical applications
2003-2006	B.Sc - Chemical Engineering Institute of Chemical Engineering and Technology, University of the Punjab, Lahore, Pakistan.	Chemical process industries, Chemical reactions engineering, Chemical engineering thermodynamics, Separation processes, Transport phenomena, Polymer engineering. Thesis: Plant design project on production of phthalic anhydride by o-xylene using Low Air Ratio (LAR) process
2001-2003	F.Sc - Pre-Engineering BISE Bahawalpur, Pakistan	General chemistry, General physics, General mathematics and English.

Academic and Professional History

Date	Job Description	Institution
2013-To date	Research Scholar	Department of Polymer Engineering & Technology, Punjab University, Lahore, Pakistan. Managing departmental activities covering all departmental research projects as well as establishment and running laboratories.
2012-2013	Research Technician	Department of Polymer Engineering & Technology, Punjab University, Lahore, Pakistan. Designed, fabricated and erected pilot plant for Polymer productions.
2011-2012	Asst. Energy Manager	Sustainable Business Solution, Lahore, Pakistan. Making Different Equipments (boilers, compressors, pumps, motors etc.) Energy Efficient.
July 2009 -Aug 2009	Trainee Engineer	Pak American Fertilizer Company, Mianwali, Pakistan. Training on processing of Ammonia section, urea section Boiler & cooling tower utilities.

Membership

Date	Role	Institution
2006- date	Registered Engineer	Pakistan Engineering Council (PEC), Islamabad, Pakistan
2011-date	Member	Institute of Engineers Pakistan (IEP), Lahore, Pakistan

Achievements /Awards

- **2nd position** in M.Phil Polymer Technology
- Awarded **PhD scholarship** from **Higher Education Commission** of Pakistan (**HEC**) and **DAAD Germany**.

Personal Information

Full name: Muhammad Azeem Munawar

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