

# Engr. Muhammad Shafiq

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## Personal Details

Father's Name	Muhammad Ishaq
Permanent Address	Village Qutrowal Tehsil Shakargarh District Narowal P.O. Satuwal
Date of Birth	1 <sup>st</sup> April 1982
Nationality	Pakistani
NIC Number	34502-1505594-5
Religion	Islam

## Educational Record

**Ph.D Chemical Engineerig                      In Progress**

### **M.Sc Chemical Engineering (2007-2009)**

Institute of Chemical Engineering & Technology University of the Punjab Lahore Pakistan

### **B.Sc. Chemical Engineering with Spec. in Biochemical Engineering. (2002-2006)**

Institute of Chemical Engineering & Technology University of the Punjab Lahore Pakistan

## Working Experience

### **Lecturer**

**November 2012-To date**

- Complete responsibilities for managing departmental affairs, conducting exams, management of labs and performing practicals.
- Teaching various courses to M.Phil students
- Testing of samples using high class characterization instruments.
- Course coordinator of M.Phil programme.

### **Researcher**

**July 2010-Oct 2012**

### **HEC funded project of "Establishment of Industrial Research Labs for Polymers and Material Synthesis"**

- Managing project activities covering laboratory matters like laboratories establishment, instrument installation and running of laboratories etc
- Supervising research projects of Masters and Graduate students to provide them technical as well as administrative support to complete their research objectives.
- Working with projects for synthesis and characterization of polymers
- Designing of chemical plants for chemical production and recycling

- Working on Project of synthesis and characterization of bio-polymers used as dental material
- Designed, fabricated and erected pilot plant for dipped goods synthesis
- Installed and got training of polymer characterization instruments.
- Designed & commissioned lab scale extruder and moulding machines.
- Procedure Optimization and Resource development
- SOP's for Instruments and pilot plants
- Machinery handling of commercial extruders in laboratories
- Maintenance of machinery in operation and as per scheduled on annual basis

### **Instruments**

- Fourier Transform Infra Red Spectrophotometer(**FTIR**)
- Universal Testing Machine (**UTM**)
- Gel Permeation Chromatograph (**GPC**)
- Thermal Analysis Instruments (**DSC, TGA, DMA, TMA**)
- Research Microscope
- Rheometer
- Rockwell Hardness Tester
- Spindle Viscometer
- High Temperature Press
- Lab Scale Extruder
- Mechanical Testing Instruments
- High Pressure Reactor
- Gas Permeability Tester
- RO/Pervaporation Unit
- Paint Characterization Instruments
- Lab Scale Attritor
- Pilot Plant for Polymer Synthesis
- Industrial Extruders (Pipe Extruder, Film Extruder, Blow Molding, Injection Molding)

### **Research Grants Received**

- PI: Rs. 125,000 grant from PU, for the “Removal of salts from sea water using polymeric membranes”. (2012-13)
- PI: Rs. 125,000 grant from PU, for the ‘Waste water treatment by using polymeric membranes for pervaporation process’. (2013-14)
- PI: Rs. 125,000 grant from PU, for the “Fabrication of blended membranes for reverse osmosis using polymeric materials”. (2014-15)
- Co-PI: Rs. 125,000 grant from PU, for the “Enhancing the Performance of Polymeric Reverse Osmosis membranes by surface modification”. (2015-16)

## Projects

- Plant Design Report on Production of Citric Acid from Molasses (B.Sc Chemical Engineering).
- Process Report on Reclamation of used Lubricating Oils (B.Sc Chemical Engineering).
- Research Project on Synthesis and Characterization of Natural Latex Products (M.Sc Chemical Engineering).

## List of research projects supervised/co-supervised

- Muhammad Rizwan, synthesis and characterization of chitosan/poly vinyl alcohol blended membranes for pervaporation (2012-2014)
- Lahrasib Javed, effect of alumina and sapiolite clay on the properties of ca/peg-600 and ca/pva membranes for reverse osmosis 2012-2014
- Dilshad Bajwa, synthesis and characterization of cellulose acetate/polyethylene glycol thin film composite membrane with zeolite as an additive
- Tanzeela Ashraf, electrochemical and anticorrosion behavior of different types of zinc rich paint coatings modified with zinc nanoparticle, 2013-2015
- Maria Wasim, mixed matrix membranes modified with electrospun (carboxy methyl cellulose sodium salt/sapiolite) fibers for nanofiltration process (2015-2017)

## Distinctions

Distinction in M.Sc chemical engineering

Incentive award on the basis of research publications for the year 2015

## Professional Trainings & Seminars

- Workshop on patent filling and introduction to intellectual property system of Pakistan (PU LHR) **May 17-18, 2017**
- 6<sup>th</sup> Invention to Innovation Summit (PU LHR) **March 8-9, 2017**
- World Quality Day (PU LHR) **Feb 8, 2017**
- 4<sup>th</sup> In-Service Faculty Training Program on the modules; 1-Patent system of Pakistan and patent filing 2-Communication skills (MMG PU LHR) **Nov 21-25, 2016**
- 25<sup>th</sup> National and 13<sup>th</sup> international chemistry conference (PU LHR) **Oct 20-22, 2014**
- International workshop on sustainable energy and membrane system for desalination and water resue (NUST) **Dec 10-11, 2013**

- Short course on porous carbon materials & polymer-fibre composites (PIEAS) **May 28-29, 2013**
- National seminar on engineering materials and their performance-2013 (PU LHR) **April 30, 2013**
- 2<sup>nd</sup> In-Service Faculty Training Program for the core modules; Professional Ethics, Management & Grooming: Assessment & Evaluation (MMG PU LHR) **Feb 4-8, 2013**
- 3<sup>rd</sup> International symposium on biomedical materials: recent advances and challenges (COMSATS LHR) **Dec 18-20, 2012**
- Enhancing Quality and Productivity through Testing (TET PU LHR) **March 9-10, 2011**
- Non Destructive Weldment Evaluation and its Remedies. (MME PU LHR) **Dec 13-14, 2010**
- HAZOP Study for Process Industries (ICET PU LHR) **Aug 10, 2010**
- Implementation of ISO 17025 for QA in Testing and Research Labs (ICET PU LHR) **Aug 7 – 8, 2010**
- Energy Conservation and Sustainability (ICET PU LHR) **Aug 6, 2010**
- Heat Exchanger Design and Rating Using CHEMCAD (ICET PU LHR) **Aug 3, 2010**
- Basic Steady State Simulation Using CHEMCAD (ICET PU LHR) **Aug 2, 2010**
- Implementation of QMS (ISO 9001:2008) in Process Industries (ICET PU LHR) **July 31 – Aug 1, 2010**
- Process Integration and Intensification (ICET PU LHR) **July 28-29, 2010**
- 5<sup>th</sup> Symposium on Engineering Sciences (ICET PU LHR) **April 2, 2014**
- 3<sup>rd</sup> Symposium on Engineering Sciences (ICET PU LHR) **March 10, 2010**
- ISO 9001:2000 Institute of Quality & Technology Management PU LHR **April 17-19, 2006.**

### **Research Profile**

**Total Impact Factor** **91.381**

### **International Publications in Peer Reviewed HEC Recognized ISI Journals**

- 1)** Saba Asim, Maria Wasim, Aneela Sabir, Muhammad Shafiq, Huma Andlib, Sania Khuram, Adnan Ahmad, Tahir Jamil, The effect of Nanocrystalline cellulose/Gum Arabic conjugates in crosslinked membrane for antibacterial, chlorine resistance and boronremoval performance, Journal of Hazardous materials 343 (2018) 68-77 (I.F= 6.393)
- 2)** Maria Wasim, Sadia Sagar, Aneela Sabir, Muhammad Shafiq, Tahir Jamil, Decoration of open pore network in Polyvinylidene fluoride/ MWCNTs with chitosan for the removal of Reactive Orange 16 dye Carbohydrate Polymers 174 (2017) 474–483 (I.F= 5.13)

- 3) Muhammad Rizwan Dilshada, Atif Islam , Aneela Sabir , **Muhammad Shafiq** , Muhammad Taqi Zahid Butt , Aamir Ijaz , Tahir Jamil, Fabrication and performance characterization of novel zinc oxide filled cross-linked PVA/ PEG 600 blended membranes for CO<sub>2</sub>/N<sub>2</sub> separation **Journal of Industrial and Engineering Chemistry(Accepted Manuscript) (2017) (I.F=4.421)**
- 4) Muhammad Liaqat, Tariq Mahmud, Abdul Hameed, Mohammad Ashraf, **Muhammad Shafiq**, Humna Asghar, Synthesis, characterization and antiurease activities of a novel Mannich base 1-[(4-methoxyphenyl)(2-methylidenecyclohexyl)methyl]pyrrolidine (MMP) and its complexes with Cu (II), Ni (II), Co (II) and Fe (II) ions **Inorganic and Nano-Metal Chemistry(Accepted Manuscript) (2017) I.F=0.5**
- 5) Maria Wasim, Aneela Sabir , **Muhammad Shafiq** , Atif Islam , Mudassar Azam, Tahir Jamil, Mixed matrix membranes: Two step process modified with electrospun (carboxy methylcellulose sodium salt/sepiolite) fibers for nanofiltration **Journal of Industrial and Engineering Chemistry(Accepted Manuscript) (2016) (I.F= 4.421)**
- 6) **M.Shafiq**, A.Sabir; A.Islam, S. M. Khan, S. N.Hussain; M.T.Z.Butt; T.Jamil, Development and performance characteristics of silane crosslinked poly(vinyl alcohol)/chitosan membranes for reverse osmosis **Journal of Industrial and Engineering Chemistry(Accepted Manuscript) (2016) (I.F=4.421)**
- 7) Saba Khurshid, Amna Shoaib, Arshad Javaid, Fozia Akhtar, **Muhammad Shafiq**, Uzma Qaisar, Management of Fusarium wilt of tomato by soil amendment with *Cenchrus pennisetiformis* under chromium stress **Physiological and Molecular Plant Pathology(Accepted Manuscript) (2016) (I.F=1.483)**
- 8) Shahid Rafi, Amna Shoaib Zoia Arshad Awan, Nayab Batool Rizvi, Nafisa, **Muhammad Shafiq**, Chromium tolerance, oxidative stress response, morphological characteristics and FTIR studies of phytopathogenic fungus *Sclerotium rolfsii* **Folia Microbiologica (Accepted Manuscript) (2016) (I.F= 1.335)**
- 9) Aneela Sabir, Wail Falath, Karl I.Jacob, **Muhammad Shafiq**, Muhammad Azeem Munawar, Atif Islam, Nafisa Gull, Muhammad Taqi Zahid Butt, Khairuddin Sanaullah, Tahir Jamil Hyperbranched polyethyleneimine induced polycationic membranes for improved fouling resistance and high RO performance **European Polymer Journal (Accepted Manuscript) (2016) (I.F= 3.658)**

- 10)** Wasim M, Sabir A, **Shafiq M**, Islam A, Jamil T Preparation and characterization of composite membrane via layer by layer assembly for desalination **Applied Surface Science** (Accepted Manuscript) (2016) (I.F=3.387)
- 11)** Sabir A, Falath W, Jacob KI, **Shafiq M**, Gull N, Islam A, Munawar MA, Zia S, Khan SM, Shafeeq A, Butt MTZ, Jamil T Integrally skinned nano-cellular crosslinked asymmetric thin films infused with PEO-PPO-PEO block copolymer/ZnO-NPs for desalination using sea salt **Materials Chemistry and Physics** XXX (2016) 1-11 (I. F=2.283)
- 12)** Islam A, Yasin T, Gull N, Khan SM, Sabir A, Munawwar MA, **Shafiq M**, Jamil T, Raza MH Fabrication and performance characteristics of tough hydrogel scaffolds based on biocompatible polymers **International Journal of Biological Macromolecules** 92 (2016) 1–10 (I.F= 3.671)
- 13)** Khan SM, Gull N, Munawwar MA, Zia S, Anjum A, Iqbal MS, **Shafiq M**, Islam A, Awais SM, Butt MA, Butt MTZ, Jamil T. Polyphenylene sulphide/carbon fiber composites: study on their thermal, mechanical and microscopic properties **Iranian Polymer Journal** 25 (2016) 475–485 (I.F=1.422)
- 14)** Anjum F, Gull N, Khan SM, Munawar MA, Islam A, Niazi SI, Zia S, **Shafiq M**, Butt MTZ, Jamil T Mechanical, thermal and microscopic profile of novel glass fiber reinforced polyester composites as a function of barium sulphate loading **Advances in Polymer Technology** (Accepted Manuscript) (2016) (I.F=1.291)
- 15)** 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** (Accepted Manuscript) (I.F=2.764)
- 16)** Khan YH, Islam A, Sarwar A, Gull N, Khan SM, Munawar MA, Zia S, Sabir A, **Shafiq M**, Jamil T Novel green nano composites films fabricated by indigenously synthesized graphene oxide and chitosan **Carbohydrate Polymers** 146 (2016) 131–138 (I.F=5.130)
- 17)** Munawar MA, Khan SM, Gull N, Islam A, **Shafiq M**, 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** 133 (2016) 43615 (I.F=1.860)

- 18) Gull N, Khan SM, Islam A, Zia S, **Shafiq M**, Sabir A, Munawar MA, Butt MTZ, Jamil T Effect of Different Oxidants on Polyaniline/Single Walled Carbon Nanotube Composites synthesized via Ultrasonically Initiated in-situ Chemical Polymerization **Materials Chemistry and Physics** xxx (2016) 1-8 (Article in Press) (I.F=2.283)
- 19) Islam A, Yasin T, Gull S, Khan SM, Munawwar 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=3.671)
- 20) Ahmad A, Waheed S, Khan S. M, Sabad-e-Gul, **Shafiq M**, Farooq M, Sanaullah K, Jamil T Effect of silica on the properties of cellulose acetate/polyethylene glycol membranes for reverse osmosis **Desalination** 355 (2015) 1–10 (I.F=5.905)
- 21) Sabir A, **Shafiq M**, Islam A, Jabeen F, Shafeeq A, A Ahmad, Butt MTZ, Jacob KI, Jamil T Conjugation of silica nanoparticles with cellulose acetate/polyethylene glycol 300 membrane for reverse osmosis using MgSO<sub>4</sub> solution **Carbohydrate Polymers** 136 (2016) 551–559 (I.F=5.130)
- 22) Islam A, Imran Z, Yasin T, Gull N, Khan S M, **Shafiq M**, Sabir A, Munawar M A, 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=0.634) 10.1590/1516-1439.043715; Page 1-8.
- 23) Sabir A, **Shafiq M**, Islam A, Sarwar A, Dilshad MR, Shafeeq A, Butt MTZ, Jamil T Fabrication of tethered carbon nanotubes in cellulose acetate/polyethylene glycol-400 composite membranes for reverse osmosis **Carbohydrate Polymers** 132 (2015) 589–597 (I.F=5.130)
- 24) Islam A, Yasin T, Sabir A, Khan SM, Sultan M, **Shafiq M**, Khan AU, Jamil T High-temperature electrical properties of silane cross-linked chitosan/poly(vinyl alcohol) membrane: thermal, mechanical and surface characterization **e-Polymers** 15(4) (2015) 255–261 (I.F=0.949)
- 25) Sabir A, Islam A, **Shafiq M**, Shafeeq A, Butt M. T. Z, Ahmad N. M, Sanaullah K. Jameel T Novel polymer matrix composite membrane doped with fumed silica

- particles for reverse osmosis desalination **Desalination** 368 (2015) 159–170 (I.F=5.905)
- 26)** Sabir A, **Shafiq M**, Islam A, Khan SM, Jamil T, Zahid MT, Shafeeq A, Shahzad A, Bhatti AS, Habib Y, Behzad S and Jabeen S Influence of polyethylene glycol 600 on cellulose acetate membranes for reverse osmosis desalination **Polymer Research Journal** 9(2) (2015) 291-302 (Nova Publishers).
- 27)** 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 & Design** 67 (2015) 313-317 (I.F=4.498)
- 28)** Suleman S, Khan SM, Gull N, Aleem W, **Shafiq M**, Jamil T Synthesis and Characterization of Visco-Elastic (VE) Polyurethane Foam **International Journal of Innovation and Applied Studies** 9 (2014) 1878-1886
- 29)** Suleman S, Khan SM, Jamil T, Aleem W, **Shafiq M**, Gull N Synthesis and Characterization of Flexible and Rigid Polyurethane Foam **Asian Journal of Applied Sciences** 2 (2014)
- 30)** Suleman S, Khan SM, Gull N, Aleem W, **Shafiq M**, Jamil T A Comprehensive Short Review on Polyurethane Foam **International Journal of Innovation and Scientific Research** 12 (2014) 165-169
- 31)** Zia KM, Mahmood K, Zuber M, Jamil T, **Shafiq M** Chitin based polyurethanes using hydroxyl terminated polybutadiene. Part I: Molecular engineering **International Journal of Biological Macromolecules** 59 (2013) 320-327 (I.F=3.671)

### **Books Published**

- 1) Maria Wasim, Aneela Sabir, **Muhammad Shafiq**, Atif Islam, Tahir Jamil; Modification of Polysulphone membrane via Layer by Layer Assembly; ISBN-13:978-3-330-03025-1, ISBN-10:3330030259, EAN:9783330030251, LAP LAMBERT Academic Publishing, Omni Scriptum Ara Pers GmbH, Germany

### **Professional Tools and Softwares**

- Microsoft Office
- Chem Draw
- Internet surfing



- Origin Lab
- Endnote

### **Affiliations**

- Pakistan Engineering Council
- Associate member of PIche
- Member of chemical society of Pakistan

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