



Rafiq Ahmed

Associate Professor
Department of Polymer &
Petrochemical Engineering,
NED University of Engineering
& Technology, Karachi,
Pakistan

Personal Information:

Date of Birth: 15-11-1973
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Career Objective:

A position in a well reputed university where I can further develop my teaching and research skills in the field of Polymer Science and Engineering.

Teaching and Research Interest:

- Polymer rheology and implication of structure development
 - Polymer structure-property relationship
 - Complex polymeric systems
 - Polymer (nano)composites
 - Bio-polymers
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Education:

2006 – 2011

Doctor of Philosophy (PhD)

Dissertation: Poly(lactic acid) stereocomplex formation in the melt: limitations and prospectives (ISBN: 978-90-386-2890-5)

[<https://doi.org/10.6100/IR719381>]

Supervisors: Prof. Dr. P.J. Lemstra and Dr. Denka Hristova-Bogaerds

Laboratory of Polymer Technology,
Department of Chemical Engineering and Chemistry,
Eindhoven University of Technology, Eindhoven,
The Netherlands

1996 – 1997

Master of Science (M.Sc.) (First Division)

Dissertation: Synthesis of Hematite Particles with Tailored Morphology for Magnetic Tape Applications

Supervisor: Prof. Dr. Najma Shams (Late)

Department of Applied Chemistry,
University of Karachi, Karachi, Pakistan

1993 – 1996

Bachelor of Science (B.Sc.) (First Division)

Department of Applied Chemistry,

University of Karachi, Karachi, Pakistan

1993	Additional Mathematics Board of Intermediate Education Karachi.
1990-1992	Higher Secondary Certificate (First Division) Board of Intermediate Education Karachi.
1989	Secondary School Certificate (First Division) Board of Secondary Education Karachi.

Additional Academic Certificates:

1. Title awarded “**Registered Polymer Scientist RPK**” (Dutch name: Register Polymeerkundige) after completion of four modulus of **postgraduate courses** from the National Dutch Research School (PTN) which includes:
(i) Polymer Chemistry (module A) (ii) Polymer Physics (module B) (iii) Polymer Properties (module C) (iv) Polymer Rheology and processing (module D & E).
 2. “**Higher Education Teaching Certificate**” (**October 01, 2019 to December 13, 2019**) awarded by NED University of Engineering & Technology.
 3. “**Introduction to Radiation Protection**” (**September 07, 2009**) offered by Radiation Protection Department, Eindhoven University of Technology, Eindhoven, The Netherlands.
 4. “**Communication, Language and Technology Course: Writing Articles + Abstracts**” (**Autumn 2008**) offered by the Eindhoven University of Technology, The Netherlands.
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Professional Experience:

2025 – Present	Associate Professor Department of Polymer & Petrochemical Engineering NED University of Engineering and Technology, Karachi-Pakistan
2012 – 2025	Assistant Professor Department of Polymer & Petrochemical Engineering NED University of Engineering and Technology, Karachi-Pakistan
2000 – 2012	Lecturer in Physical Chemistry Government Degree Science and Commerce College Landhi/Korangi-06
1999 – 2000	Quality Control Chemist (Pakistan State Oil – Karachi Pakistan)
1998 – 1999	Dyeing Supervisor

(Dawood Shabbir Industries, Karachi Pakistan)

1997 – 1998

Research and Development Manager (R & D Manager)
(Hub-Pak Salt Refinery, Hub, Balochistan, Pakistan)

PhD/Master Thesis:

PhD Thesis:

- 1. Co-Supervised:** Thesis Title: “Elastomer Nanocomposite for Seal Applications: Preparation and Characterization for Harsh Environment” [**COMPLETED 2025**]
- 2. Co-Supervised:** Thesis Title: “Harnessing Food Waste for the Development of Edible Active Coatings for Enhanced Shelf Life of Climacteric Foods” [**In-Progress**]
- 3. Supervisor:** Thesis Title: Sustainable Solvent-Based Recycling of Multilayer Flexible Plastic Packaging” [**In-Progress**]

Master Thesis:

1. Enhanced Crystallization of Polypropylene with Nanoscale Clarifiers, 2015.
 2. Rheological Characterization and Modeling of PVC Paste, 2016.
 3. To Explore Polymer Cure Of De-Emulsified Cutting Fluids, 2017.
 4. Rheological Characterization and Testing of Synthetic Rubber Latex, 2018.
 5. To Explore the Effect of Injection Molding Processing Parameters on Crazing in Acrylic Polymers. 2021.
 6. Dual Purpose Development of Cost Optimized High-Filler Polyolefin Films Via Elastomer Modification
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Trainings/Courses/Workshops

1. Training on “**Development of SAR as per HEC Guidelines**” (November 2024) organized by Quality Enhancement Cell (QEC), NED University of Engineering & Technology.
2. Training on “**An Awareness about University-wide Policies/Systems**” (February 20, 2024) organized by QEC, NED University of Engineering & Technology.
3. Training on “**International Ranking Criteria: KPIs & Goal Setting**” (November 22, 2023) organized by QEC, NED University of Engineering & Technology.
4. Training on “**Ensuring Quality in Higher Education: A prospect of HEC Graduate policy – 2023**” (October 05, 2023) organized by QEC, NED University of Engineering & Technology.

5. Training on “**ASTM COMPASS Database**” (November 22, 2022) organized by Director, Business Development (EMEA) ASTM International and HEC Pakistan.
6. Training on “**Accessing Wiley Journals and Publication Tips for Authors and Researchers (HEC)**” (October 31, 2022) organized by HEC Pakistan and Wiley Publishers.
7. Course on “**Higher Education Teaching Certificate**” (October 01, 2019 to December 13, 2019) awarded by NED University of Engineering & Technology.
8. Training on “**Outcome Based Education**” (December 26-30, 2016) organized by QEC, NED University of Engineering & Technology.
9. Training on “**Financial Management**” (October 16-19, 2015) organized by QEC, NED University of Engineering & Technology.
10. Training on “**Quality Assurance in Education**” (April 17, 2015) organized by QEC, NED University of Engineering & Technology.
11. Workshop on “**Developing Industry Driven Technologies**” (January 05, 2015) organized by ORIC NED, Pakistan Scientific and Technological Information Centre (PASTIC) and Institute of Research Promotion (iRP).
12. Training on “**Technical Computing with MATLAB**” (December 08-12, 2014) organized by QEC, NED University of Engineering & Technology.
13. International workshop on “**Fundamentals of Intellectual Property**” (September 23, 2013) organized by Commercial Law Development Program (CLDP), Office of the General Counsel, US Department of Commerce in collaboration with NED University of Engineering & Technology and HEC Pakistan.
14. Workshop on “Computer Aided Engineering (CAE): Application in Research” (October 3 & 4, 2012) organized by Department of Automotive & Marine Engineering, NED University of Engineering & Technology.

Publications

Journal Publications:

1. Iqra Siddique Alvi, Jawaad Ahmed Ansari, **Rafiq Ahmed** “Optimization of eco-sustainable cordia myxa—grapefruit peel edible coatings for enhancing postharvest quality of sapodilla via response surface methodology”, **Journal of Food Measurement and Characterization 2026**.

2. Asra Nafees, Saud Hashmi, **Rafiq Ahmed** “Investigating the Effect of Nano-Crystalline Cellulose in Nitrile Butadiene Rubber Matrix for Improved Thermo-Mechanical Properties”, **Processes**, **2024**, **12**, **2350**.
3. Sameera Zaki, Saeeda Nadir Ali, Amtul Qayoom, **Rafiq Ahmed**, Aiman Rasheed Khan, “Green synthesis, spectroscopic and theoretical studies on molecular charge-transfer complex of linagliptin with 2, 3-dichloro-5,6-dicyano-1,4-benzoquinone, chloranilic acid and ninhydrin”, **Journal of Molecular Liquids**, **2024**, **401**, **124696**.
4. **Rafiq Ahmed** , Asim Mushtaq, Raza Muhammad Khan , Saud Hashmi and Zaeem Uddin Ali “Effect of Xanthan Gum Content on the Rheological Behaviour of Mayonnaise”, **Pakistan Journal of Science and Industrial Research, Series A: Physical Science**, **2024**, **67A(1)**, **1-10**.
5. Saud Hashmi , Asim Mushtaq, Raza Muhammad Khan , **Rafiq Ahmed** and Zaeem Uddin Ali “Drinking Water Quality Improvement by Removal of Salinity Using Wetland”, **Pakistan Journal of Science and Industrial Research, Series A: Physical Science**, **2024**, **67A(1)**, **28-37**.
6. Saud Hashmi, **Rafiq Ahmed**, Adeel ur Rehman, Alberto García-Peñas, Awan Zahoor, Firoz Khan, Mohammad Vatankhah-Varnosfaderani, Thamraa Alshahrani, Florian J. Stadler, “Study of the synergistic influence of zwitterionic interactions and graphene oxide on water diffusion mechanism and mechanical properties in hybrid hydrogel network” **Chemosphere**, **2023**, **314**, **137710**.
7. Amtul Qayoom, Saeeda Nadir Ali, **Rafiq Ahmed**, Neha Kanwal and Shazia Nisar “Synthesis, Characterization and Statistical Optimization of Hydrophobic/Oleophilic Polystyrene Coated ZnO-Cotton Composite as Vegetable Oil Adsorbent”, **Journal of the Chemical Society of Pakistan**, **2023**, **45**, **368-381**.
8. Nadia Khan, Asim Mushtaq, **Rafiq Ahmed**, Raza Muhammad Khan, Zaeem Uddin Ali, “Poly-Naphthalene Sulphonate Based Concrete Admixture”, **Iranian Journal of Chemistry and Chemical Engineering**, **2023**, **42(8)**, **2466-2482**.
9. **Rafiq Ahmed**, Asim Mushtaq, Saud Hashmi, Raza Muhammad Khan, Muhammad Ali, Zaeem Uddin Ali, “Development of Polymer-Modified Concrete Using Ethylene Vinyl Acetate Copolymer”, **Iranian Journal of Chemistry and Chemical Engineering**, **2023**, **42(10)**, **3338-3347**.
10. Ahmed Saleem, Asim Mushtaq, Raza Muhammad Khan, **Rafiq Ahmed**, Zaeem Uddin Ali, “Enhance the Corrosion Resistance of Underground Petroleum Tanks with the use of Fiberglass Reinforced Composite”, **Iranian Journal of Chemistry and Chemical Engineering**, **2023**, **42(8)**, **2529-2537**.

11. Saud Hashmi, Asim Mushtaq, **Rafiq Ahmed** and Zaeem Uddin Ali, "Synthesis and Characterization of Reduced Graphene Oxide from Indigenous Coal: A Non-Burning Solution", **International Journal of Membrane Science and Technology**, 2022, 9, 1-12.
12. Shaine Mohammadali Lalji, Syed Imran Ali, **Rafiq Ahmed**, Saud Hashmi, Zahoor Ul Hussain Awan, Syed Wajahat Ali Qazi, "Influence of graphene oxide on salt-polymer mud rheology and Pakistan shale swelling inhibition behavior", **Arabian Journal of Geosciences**, 2022, 15, 612.
13. Shaine Mohammadali Lalji, Syed Imran Ali, **Rafiq Ahmed**, Saud Hashmi, Zahoor Ul Hussain Awan, Yunus Jawed., "Study the effects of mineral content on water diffusion mechanism and swelling characteristics in shale formations of Pakistan", **Arabian Journal of Geosciences**, 2022, 15, 864.
14. **Rafiq Ahmed**, Asim Mushtaq, Saud Hashmi, Sindhia Abbasi and Zaeem Uddin Ali, "To Explore the Effect of Injection Molding Processing Parameters on Crazing in Acrylic Polymers", **Journal of the Chemical Society of Pakistan**, 2022, 44(6), 94-309.
15. Ikhtlaque Ahmed Bhutto, Abdul Nasir Laghari, **Rafiq Ahmed**, Jawad Ahmed Khoso, Afaq Ahmed Bhutto, "To Explore the Effect of Modified Seashell on the Thermo-Mechanical Properties of Polymer Matrix Composite", **Quest Research Journal**, 2022, 20(2), 99-105.
16. Saud Hashmi, Asim Mushtaq, **Rafiq Ahmed**, Raza Muhammad Khan, Zaeem Uddin Ali, "Synthesis and Application of Hydrogels for Oil-Water Separation", **Iranian Journal of Chemistry and Chemical Engineering**, 2022, 41(12), 4151-4164.
17. Nadia Khan, Syed Ali Ammar Taqvi, **Rafiq Ahmed**, Bilal Kazmi, "Investigating the Effect of Temperature, Molar Ratio of Ethylene Glycol to Oil, and Catalyst Amount on Production Yield Bio Lube from Neem Seed Oil", **Iranian Journal of Chemistry and Chemical Engineering**, 2022, 41(10), 3591-3599.
18. Saud Hashmi, Saad Nadeem, Alberto García-Peñas, **Rafiq Ahmed**, Awan Zahoor, Mohammad Vatankhah-Varnoosfaderani, and Florian J. Stadler, "Study the Effects of Supramolecular Interaction on Diffusion Kinetics in Hybrid Hydrogels of Zwitterionic Polymers and CNTs", **Macromolecular Chemistry and Physics**, 2022, 223, 2100348.
19. Shaine Mohammadali Lalji, Syed Imran Ali, **Rafiq Ahmed**, Saud Hashmi, Zahoor Ul Hussain Awan, "Comparative performance analysis of different swelling kinetic models for the evaluation of shale swelling", **Journal of Petroleum Exploration and Production Technology**, 2021, 12, 1237-1249.
20. **Rafiq Ahmed** and Kausar Ali Syed, "Enhanced Mechanical Properties of Organo-Clay Based UHMWPE Nanocomposite Films", **Journal of Basic & Applied Sciences**, 2016, 12, 226-230.

21. **Rafiq Ahmed** and Kausar Ali Syed, “Synthesis of Superabsorbent Polymer (SAP) via Industrially Preferred Route”, **Journal of Basic & Applied Sciences**, 2016 12, 383-387.

Conference Paper/Presentations

1. 2nd International Conference on Advanced Materials and Process Engineering (AMPE) **December 12-13, 2017: “Effect of Xanthan Gum Concentration on the Rheological Properties of Commercial Tomato Ketchup”**, **Rafiq Ahmed**, Raza Muhammad Khan, Asra Nafees, Abdul Raheem, organized by NED university of Engineering & Technology.

2. 2nd International Conference of Advanced Materials and Process Engineering (AMPE) **December 12-13, 2017: “To Explore Polymer Cure of De-Emulsified Cutting Fluids”**, **Rafiq Ahmed**, H. Taqi, R.M. Khan, S.G.Hussain, H. Arif, K.A. Syed, organized by NED university of Engineering & Technology.

3. 1st International Conference of Advanced Materials and Process Engineering (AMPE) **December 14-15, 2015: “Enhanced Mechanical Properties of Organo-clay based UHMWPE nanocomposite Films”** **Rafiq Ahmed**, Kausar Ali Syed, Asra Shabbir, Maria Idrees, Maryam Ansari, Iqra Majeed organized by NED university of Engineering & Technology.

4. 1st International Conference of Advanced Materials and Process Engineering (AMPE) **December 14-15, 2015: “Synthesis of Super-Absorbent Polymer (SAP) via Industrially Preferred Route”** **Rafiq Ahmed**, M. Qaiser, S.M. Shujaat, **Waqar Ahmed**, M. Tahir, S. Imran Ali, organized by NED university of Engineering & Technology.

5. International Conference on Nanomaterials and Nanotechnology (ICCN) (**April 7 – 9, 2014**): **“Enhanced Stereocomplex Poly(lactic acid) (sc-PLA) Crystallization using Organo-clay”** organized by Federal Urdu University of Arts , Science & Technology, Karachi.

6. Dutch Polymer Days (DPD), Veldhoven, the Netherlands (**2011**) **“Enhanced PLA stereocomplex formation in the melt processed binary PDLA/PLLA blends via nanocomposite formation”**; **Rafiq Ahmed**, Denka Hristova-Bogaerds, P.J. Lemstra.

7. EUPOC 2011, Gargnano, Italy (**2011**) **“Stereocomplex-PLA from melt: Effect of Melt-memory and Flow”** Denka Hristova-Bogaerds, Rafiq Ahmed, Pim Lohmeijer, P.J. Lemstra.

8. Dutch Polymer Days (DPD), Veldhoven, the Netherlands (**2010**) **“Poly(lactic acid) stereocomplex formation in the melt: Stereocomplexation in the homogeneously mixed blends”**; **Rafiq Ahmed**, Denka Hristova-Bogaerds, P.J. Lemstra.

9. Dutch Polymer Days (DPD), Lunteren, the Netherlands, (2009) “**Poly(lactic acid) stereocomplex formation in the early stages of melt extrusion (from solid state blend)**”; Rafiq Ahmed, Denka Hristova-Bogaerds, P.J. Lemstra.
10. Dutch Polymer Days (DPD), Lunteren, the Netherlands, (2008): “**Rheological Phenomena in Ternary Polymeric Solutions of UHMWPE and PP in Paraffine**”; Rafiq Ahmed, Denka Hristova-Bogaerds, P.J. Lemstra.
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References:

- (1) **Name:** Prof. Dr. Saud Hashmi
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Email ID: cpp@neduet.edu.pk; saudhashmi@cloud.neduet.edu.pk
- (2) **Name:** Dr. Asim Mushtaq
Designation: Associate Professor (Department of Polymer & Petrochemical Engineering, NED University of Engineering & Technology, University Road, Karachi.)
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