

WAQAS AHMAD

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PERSONALIA

Date & place of birth: 15/06/1980, Swat
Passport No: ZY1155811
Languages: Pashto, Urdu, English (read, write and speak)
Permanent Address: Village & P.O. Chungai Shamoza, Tehsil Barikot
District Swat, Khyber PuhktunKhwa, Pakistan.

EDUCATION

Ph.D (2013) Fuel/Applied Chemistry, Institute of Chemical Science University of Peshawar, Pakistan & Department of Chemical and Material Engineering, University of Alberta, Canada.

M.Phil (2009) Fuel chemistry/Applied Chemistry, University of Peshawar.

M.Sc (2003) (1st Div) Organic Chemistry, University of Peshawar.

B.Sc (2001) (1st Div) Chemistry, Zoology & Botany, University of Peshawar.

H.S.S.C/F.Sc (1999), (1st Div) Pre-medical, Govt. Jehanzeb PG College, Saidu Sharif Swat

S.S.C (1997) (1st Div) Science group, B.I.S.E Swat.

Research Interest

Petroleum & Coal processing and upgradation, Catalytic Oxidative desulfurization, Catalytic cracking of hydrocarbons, Lube oil processing, Environmental Catalysis, Waste Polymers Processing, Polymer Composites/Materials/ Catalysts synthesis and Characterization, Wastewater Treatment.

Employment record

- 1. Assistant Professor (TTS) Fuel and Applied Chemistry.** (26-03-2015 till to date.)
Institute of Chemical Sciences, University of Peshawar, Khyber Pukhtunkhwa, Pakistan.
- 2. Assistant Professor-IPFP** (24-02-2014 to 25-03-2015) Department of Chemistry,
University of Malakand, Chakdara, Dir L, Khyber Pukhtunkhwa.
- 3. Technical Officer**, (02-05-2007 to 02-03-2011) Pakistan Council of Research in Water Resources (PCRWR), Water Resources Research Centre (WRRC), Peshawar.

Courses Taught

Coal Conversion Technology, Petrochemical Processes, Fuel Chemistry, Environment Chemistry, Polymer Chemistry, Unit Operation, Applied/Industrial chemistry.

Distinctions and Awards

1. Awarded Indigenous 5000 PhD fellowship by HEC Pakistan, 2010.
2. Awarded scholarship for visit to University of Alberta Canada, for research work (6 months) under IRSIP program, by HEC Pakistan, 2012.
3. Won the consolation prize in poster competition, in National symposium on Kinetics and Catalysis, 2011.
4. Letter of Appreciation, awarded by Director WRRC, Peshawar.
5. Letter of Appreciation, awarded by Chairman Dept. of Water Management, Agriculture University Peshawar (for excellent performance in delivering training on water quality analysis to the Faculty of Dept. of Water Management).

Publications

1. Subhan, S., Yaseen, M., Ahmad, B., Tong, Z., Subhan, F., **Ahmad, W.**, & Sahibzada, M. (2021). Fabrication of MnO₂ NPs Incorporated UiO-66 for the Green and Efficient Oxidative Desulfurization and Denitrogenation of Fuel Oils. *Journal of Environmental Chemical Engineering*, 105179.
2. **Ahmad, Waqas**; Jabbar, Bushra; Ahmad, Imtiaz; Mohamed Jan, Badrul; Stylianakis, Minas M.; Kenanakis, George; Ikram, Rabia. 2021. "Highly Sensitive Humidity Sensors Based on Polyethylene Oxide/CuO/Multi Walled Carbon Nanotubes Composite Nanofibers" *Materials* 14, no. 4: 1037. <https://doi.org/10.3390/ma14041037>
3. Yaseen, Muhammad, Muhammad Usman Farooq, **Waqas Ahmad**, and Fazle Subhan. "Fabrication of rGO-CuO and/or Ag₂O Nanoparticles Incorporated Polyvinyl Acetate Based Mixed Matrix Membranes for the Removal of Cr⁶⁺ from Anti-corrosive Paint Industrial Wastewater." *Journal of Environmental Chemical Engineering* (2021): 105151.
4. **Ahmad, W.**, Ur Rahman, A., Ahmad, I., Yaseen, M., Mohamed Jan, B., Stylianakis, M. M., ... & Ikram, R. Oxidative Desulfurization of Petroleum Distillate Fractions Using Manganese Dioxide Supported on Magnetic Reduced Graphene Oxide as Catalyst. *Nanomaterials*, 2021, 11(1), 203.
5. Yaseen, M., Ullah, S., **Ahmad, W.**, Subhan, S., & Subhan, F. (2021). Fabrication of Zn and Mn loaded activated carbon derived from corn cobs for the adsorptive desulfurization of model and real fuel oils. *Fuel*, 284, 2021, 119102.
6. **Ahmad, W.**, Qaiser, S., Ullah, R., Mohamed Jan, B., Karakassides, M. A., Salmas, C. E., ... & Ikram, R. (2020). Utilization of Tires Waste-Derived Magnetic-Activated Carbon for the Removal of Hexavalent Chromium from Wastewater. *Materials* 2021, 14, 34.
7. Ikram, R., Mohamed Jan, B., Atif Pervez, S., Papadakis, V. M., **Ahmad, W.**, Bushra, R., ... & Rana, M. (2020). Recent Advancements of N-Doped Graphene for Rechargeable Batteries: A Review. *Crystals*, 10(12), 1080.
8. **Ahmad, W.**, Ahmad, I., Ahmad, I., Yaseen, M., Muhammad, N., & Salman, M. (2020). Desulfurization and de-ashing of low-rank coal by catalytic oxidation using Sn as catalyst loaded in different forms. *International Journal of Coal Preparation and Utilization*, 1-17.
9. Ikram, R., Jan, B. M., & **Ahmad, W.** (2020). Advances in synthesis of graphene derivatives using industrial wastes precursors; prospects and challenges. *Journal of Materials Research and Technology*. 9, 6, 15924-15951

10. Ul Haq, I., **Ahmad, W.**, Ahmad, I., & Yaseen, M. (2020). Photocatalytic oxidative degradation of hydrocarbon pollutants in refinery wastewater using TiO₂ as catalyst. *Water Environment Research*, 92(12), 2086-2094.
11. R. Ullah, **W. Ahmad**, I. Ahmad, M. Khan, M. Iqbal Khattak and F. Hussain, Adsorption and recovery of hexavalent chromium from tannery wastewater over magnetic max phase composite, *Separation Science and Technology*, 2020, 1-14.
12. S. Ullah, S. Hussain, **W. Ahmad**, H. Khan, K. I. Khan, S. U. Khan and S. Khan, Desulfurization of model oil through adsorption over activated charcoal and bentonite clay composites, *Chemical Engineering & Technology*, 2020, **43**, 564-573.
13. Ikram, R., Jan, B. M., & **Ahmad, W.** (2020). An overview of industrial scalable production of graphene oxide and analytical approaches for synthesis and characterization. *Journal of Materials Research and Technology*, 9(5), 11587-11610.
14. M. Zeeshan, W. Ahmad, F. Hussain, **W. Ahmad**, M. Numan, M. Shah and I. Ahmad, Phytostabilization of the heavy metals in the soil with biochar applications, the impact on chlorophyll, carotene, soil fertility and tomato crop yield, *Journal of Cleaner Production*, 2020, **255**, 120318.
15. S. M. Sohail, I. Ahmad, H. Khan and **W. Ahmad**, Influence of surfactants on dispersity of Pakistani crude oils for resource recovery and residue reduction during distillation, *Journal of Environmental Chemical Engineering*, 2019, **7**, 102952.
16. R. Ikram, K. H. Low, N. B. Hashim, **W. Ahmad** and M. N. A. Nasharuddin, Characterization of sulfur-compounds as chemotaxonomic markers in the essential oils of Allium species by solvent-free microwave extraction and gas chromatography–mass spectrometry, *Analytical Letters*, 2019, **52**, 563-574.
17. M. Ilyas, **W. Ahmad**, H. Khan, S. Yousaf, M. Yasir and A. Khan, Environmental and health impacts of industrial wastewater effluents in Pakistan: a review, *Reviews on environmental health*, 2019, **34**, 171-186.
18. F. Hussain, **W. Ahmad**, I. Ahmad and S. Guo, Enhanced and Facile Desulfurization of Commercial Oil Using Air-Assisted Performic Acid Oxidation System, *Environmental Engineering Science*, 2019, **36**, 1404-1411.
19. **W. Ahmad**, I. Ahmad, R. Ahmad, Z. Ullah and M. Ibrahim, Desulfurization of Lakhra coal by combined leaching and catalytic oxidation techniques, *International Journal of Coal Preparation and Utilization*, 2019, 1-17.
20. Ilyas, M., **Ahmad, W.**, Khan, H., & Ahmad, I. (2019). Application of composite adsorbents prepared from waste PS and PET for removal of Cr and Cu ions from wastewater. *Desalination and Water Treatment*, 171, 144-157.
21. Ilyas, M., **Ahmad, W.**, Khan, H., Yousaf, S., Khan, K., & Nazir, S. (2018). Plastic waste as a significant threat to environment—a systematic literature review. *Reviews on environmental health*.
22. Ikram, R., Low, K. H., Hashim, N. B., **Ahmad, W.**, & Nasharuddin, M. N. A. (2018). Characterization of Sulfur-Compounds as Chemotaxonomic Markers in the Essential Oils of Allium Species by Solvent-Free Microwave Extraction and Gas Chromatography–Mass Spectrometry. *Analytical Letters*, 1-12.

23. Shah, S. S., Ahmad, I., **Ahmad, W.**, Ishaq, M., Gul, K., Khan, R., & Khan, H. (2018). Study on adsorptive capability of acid activated charcoal for desulphurization of model and commercial fuel oil samples. *Journal of Environmental Chemical Engineering*, 6, 4, 4037-4043.
24. Ahmad, I., Sohail, S. M., Khan, H., **Ahmad, W.**, Gul, K., Khan, R., & Yasin, A. (2018). Study on Atmospheric Distillation of Some Plain and Chemically Dispersed Crude Oils: Comparison of Yields and Fuel Quality of Distillate Fractions. *Energy & Fuels*, 32(1), 181-190.
25. Muhammad, Y., Shoukat, A., Rahman, A. U., Rashid, H. U., & **Ahmad, W.** (2018). Oxidative desulfurization of dibenzothiophene over Fe promoted Co–Mo/Al₂O₃ and Ni–Mo/Al₂O₃ catalysts using hydrogen peroxide and formic acid as oxidants. *Chinese Journal of Chemical Engineering*, 26(3), 593-600.
26. Shah, S. S., Ahmad, I., **Ahmad, W.**, Ishaq, M., & Khan, H. (2017). Deep desulphurization study of liquid fuels using acid treated activated charcoal as adsorbent. *Energy & Fuels*, 31(8), 7867-7873.
27. Ahmad, Imtiaz, M. Ismail Khan, Hizbullah Khan, M. Ishaq, Razia Khan, Kashif Gul, and **Waqas Ahmad**. Pyrolysis of HDPE into fuel like products: Evaluating catalytic performance of plain and metal oxides impregnated waste brick kiln dust. *Journal of Analytical and Applied Pyrolysis*. (2017) 124: 195-203.
28. **Ahmad, W.**, Ahmad, I., Ishaq, M., & Ihsan, K. (2017). Adsorptive desulfurization of kerosene and diesel oil by Zn impregnated montmorillonite clay. *Arabian Journal of Chemistry*, 10, S3263-S3269.
29. Ahmad, I., Khan, M. I., Khan, H., Ishaq, M., Khan, R., Gul, K., & **Ahmad, W.** (2017). Influence of waste brick kiln dust on pyrolytic conversion of polypropylene in to potential automotive fuels. *Journal of Analytical and Applied Pyrolysis*, 126, 247-256.
30. Ahmad, Imtiaz, Razia Khan, Mohammad Ishaq, Hizbullah Khan, Mohammad Ismail, Kashif Gul, and **Waqas Ahmad**. Production of Lighter Fuels from Spent Lubricating Oil via Pyrolysis over Barium-Substituted Spinel Ferrite. *Energy & Fuels*. (2016), 30, 6: 4781-4789.
31. Khan, Razia, Imtiaz Ahmad, Hizbullah Khan, Mohammad Ismail, Kashif Gul, Aftab Yasin, and **Waqas Ahmad**. Production of diesel-like fuel from spent engine oil by catalytic pyrolysis over natural magnetite. *Journal of Analytical and Applied Pyrolysis*. (2016) 120: 493-500.
32. Ahmad, Imtiaz, Razia Khan, Mohammad Ishaq, Hizbullah Khan, M. Ismail, Kashif Gul, and **Waqas Ahmad**. Valorization of spent lubricant engine oil via catalytic pyrolysis: Influence of barium-strontium ferrite on product distribution and composition. *Journal of Analytical and Applied Pyrolysis* (2016): 122, 131-141.
33. **Waqas Ahmad**, Imtiaz Ahmad, Muhammad Yaseen. Desulfurization of liquid fuels by air assisted peracid oxidation system in the presence of Fe-ZSM-5 as catalyst. *The Korean Journal of Chemical Engineering*, (2016), 33(9), 2530-2537
34. Ahmad, Imtiaz, Razia Khan, Mohammad Ishaq, Hizbullah Khan, Mohammad Ismail, Kashif Gul, and **Waqas Ahmad**. Catalytic Pyrolysis of Used Engine Oil Over Coal Ash into Fuel Like Products. *Energy & Fuels* (2016), 30 (1), 204–218.

35. Ahmad, Imtiaz, Jan Ullah, M. Ishaq, Hizbullah Khan, Razia Khan, **Waqas Ahmad**, and Kashif Gul. "Characterizing Antioxidant Potential of Alcoholic Extracts of Rice Husk and Saw Dust for Oxidative Stability of Base Lubricating Oil Using Physico-chemical Properties." *Waste and Biomass Valorization*, (2016), 7(2), 331-341.
36. Syed Sikandar Shah, Imtiaz Ahmad, and **Waqas Ahmad**. "Adsorptive desulphurization study of liquid fuels using Tin (Sn) impregnated activated charcoal." *Journal of hazardous materials* (2016), 304, 205-213.
37. Imtiaz Ahmad, M. Ismail Khan, M. Ishaq, Hizbullah Khan, Razia Tariq, Kashif Gul, **Waqas Ahmad**. Pyrolysis Study of Polypropylene and Polyethylene into Premium Oil Products. *International Journal of Green Energy and Technology*, (2015), 12, 663–671.
38. Ahmad, Imtiaz, Mohammad Ismail Khan, Hizbullah Khan, Mohammad Ishaq, Razia Tariq, Kashif Gul, and **Waqas Ahmad**. "Influence of metal-oxide-supported bentonites on the pyrolysis behavior of polypropylene and high-density polyethylene." *Journal of Applied Polymer Science*, (2015), 132(1).
39. Imtiaz Ahmad, Jan Ullah, M. Ishaq, Hizbullah Khan, Razia Khan, **Waqas Ahmad**, and Kashif Gul. Oxidative Stability of the Plain and Additized Mineral Base Oil Samples Monitored through Gas Chromatography–Mass Spectrometry. *Energy and Fuels*. (2015), 29(10). 6522–6528.
40. Imtiaz Ahmad, Jan Ullah, Muhammad Ishaq, Hizbullah Khan, Kashif Gul, Samina Siddiqui and **Waqas Ahmad**. Monitoring of oxidation behavior in mineral base oil additized with biomass derived antioxidants using FT-IR spectroscopy. *RSC Advances*, (2015), 5, 101089–101100.
41. Khan, M. Ismail, Imtiaz Ahmad, Hizbullah Khan, M. Ishaq, Razia Khan, Kashif Gul, and **Waqas Ahmad**. "Catalytic Performance of Metal Impregnated Carbon (Darco) in Conversion of Polypropylene and High-Density Polyethylene into Useful Products." *Fullerenes, Nanotubes and Carbon Nanostructures* (2015), 23, 7, 627-639
42. Mohammad Shakirullah, Imtiaz Ahmad, Noor, Zada, Mohammad Ishaq, **Waqas Ahmad**, Khalid, Saeed and Imdad Ullah Mohammadzai. Thermocatalytic Conversion of Coal Soot to Carbon Nanorods. *Fullerenes, Nanotubes, and Carbon Nanostructures*, 2013, 21: 171–182
43. Mohammad Shakirullah, **Waqas Ahmad**, Imtiaz Ahmad, Muhammad Ishaq and M. Ismail Khan. Deoxydesulfurization of liquid fuels using air assisted performic acid oxidation followed by reductive decomposition through in situ generated Ni-boride. *RSC Advance*, 2013, 3, 10673-10675
44. IMTIAZ Ahmad, **WAQAS Ahmad**, MUHAMMAD Ishaq. Desulphurization of model and commercial oil using air assisted performic acid oxidation system in the presence of emulsion catalyts. *Chinese Journal of Catalysis*, 2013, 34, 1839-1847.).
45. Imtiaz Ahmad, M. Ismail Khan, M. Ishaq, Hizbullah Khan, Kashif Gul, **Waqas Ahmad**. Catalytic efficiency of some novel nanostructured heterogeneous solid catalyts in pyrolysis of HDPE. *Polymer Degradation and Stability*. 2013, 98, 2512-2519.
46. Mohammad Shakirullah, Imtiaz Ahmad, **Waqas Ahmad**, Mohammad Ishaq, M. I Khan. Desulphurization of liquid fuels by selective adsorption through mineral clays as adsorbents. *Journal of Chilean Chemical Society*. 57, N 4 (2012)

47. M. Ismail Khan, Imtiaz Ahmad, M. Ishaq, Shakir Khan Safi and **Waqas Ahmad**, Synthesis and Characterization of Original and Various Metal Doped Barium Titanates. *Journal of Science and Technology University of Peshawar*, 2011, 35 (182), 51-56.
48. M. Shakirullah, Imtiaz Ahmad, M. Ishaq and **Waqas Ahmad**. Hydrodesulphurization of heavy residue using in situ generated Hydrogen. *Energy Conversion and Management*. 51 (2010) 998–1003.
49. M. Shakirullah, **Waqas Ahmad**, Imtiaz Ahmad, M. Ishaq. Oxidative desulphurization study of gasoline and kerosene, Role of some organic and inorganic oxidants. *Fuel Processing Technology*. 91 (2010) 1736–1741.
50. Mohammad Shakirullah, Imtiaz Ahmad, **Waqas Ahmad**, Mohammad Ishaq. Desulphurization study of petroleum products through extraction with aqueous ionic liquids. *Journal of Chilean Chemical Society*. 55, N 2 (2010)
51. M. Shakirullah, Imtiaz Ahmad, M. Ishaq and **Waqas Ahmad** “Study on the Role of Metal Oxides in Desulphurization of Some Petroleum Fractions. *Journal of the Chinese Chemical Society*, 2009, 56, 107-114.

Authorship/ Contribution in book

1. Waqas Ahmad, Sulfur in Petroleum: Petroleum Desulfurization Techniques, Chapter in “Applying Nanotechnology to the Desulfurization Process in Petroleum Engineering” by IGI global publishers USA, 2015. ISBN 1466695463
2. Ahmad, Waqas, and Imtiaz Ahmad. "Mechanisms of Desulfurization by Nanomaterials." *Nanotechnology in Oil and Gas Industries*. Springer, Cham, 2018. 211-243. ISBN978-3-319-60630-9

Research Projects

1. **Deep desulfurization of coal; removal of organic sulfur by oxidation followed by extraction** (0.5 Million PKR) Funded by HEC under SRG program. 2015-2016. (Completed)
2. **Desulfurization and demineralization of Hangu Coal by slurry phase mild air oxidation assisted by flotation technique**, Funded by Higher Education Department Khyber Pakhtunkhwa under Higher Education Endowment Fund (HEREF) Program (0.816 Million PKR), 2018 (Midterm Progress Submitted).
3. **Treatment of Oily wastewater by simultaneous Catalytic Photochemical Oxidation and Adsorption Techniques**, (6.4 Million PKR) Funded by HEC under NRPU program. 2019. (Ongoing)

Conferences Co-Organized

1. **2nd National Conference on Fuel and Environment** organized by Institute of Chemical Sciences university of Peshawar, at Baragali Summer Campus, 23 to 27 July, 2010.
2. **29th National & 17th International Chemistry (Conference) Chemical sciences for sustainable development**, organized by Institute of Chemical Sciences university of Peshawar, at Baragali Summer Campus, 06-08 September, 2018.

Review of International Articles

Contribution as a reviewer, with following journals:

- Korean Journal of Chemical Engineering.
- Journal of Cleaner Production
- RSC advances
- Instrumentation Science and Technology
- Applied Petrochemical Research
- Journal of Hazardous materials

REFERENCES

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