

WAQAS AHMAD

Assistant Professor (Fuel/Applied Chemistry)

Institute of Chemical Sciences, University of Peshawar, Pakistan.

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EDUCATION

Ph.D: (2013) Fuel 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, Institute of Chemical Science University of Peshawar.

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

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

Intermediate (F.Sc): 1999, Pre-medical, Govt. Jehanzeb PG College, B.I.S.E Swat

S.S.C: 1997, Physics, Chemistry, Biology, Maths, B.I.S.E Swat, Govt. High School Ramora.

Research Interest

Catalytic Oxidative desulfurization, Petroleum & coal processing and upgrading, Catalytic conversion, lube oil processing, Waste Polymers Processing, Composite Materials, Wastewater treatment.

Employment record

1. **Assistant Professor: (Fuel and Applied Chemistry)**, 26-03-2015 till to date.
Institute of Chemical Sciences, University of Peshawar, Khyber Pukhtunkhwa, Pakistan.
2. **Assistant Professor: (Fuel and Applied Chemistry)**, 24-02-2014 to 25-03-2015,
Department of Chemistry, University of Malakand, Chakdara, Dir L, Khyber Pukhtunkhwa.
3. **Technical Officer:** (May 2007 to January 2010), Water Resources Research Centre,
Pakistan Council of research in Waster Resources (PCRWR), Ministry of Science and Technology.

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, University of Peshawar, 2011.
4. Received Letter of Appreciation from Director WRRC (Water Resources Research Centre), Peshawar, for delivering excellent training on water quality analysis at Agriculture University Peshawar.

Publications

1. Ali, Hamza, Muhammad Uzair, **Waqas Ahmad**, Vineet Tirth, Tashfin Akhtar, Wafa Mohammed Almalki, Mudasser Husain, Q. Humayun, and Nasir Rahman. "Enhancement in thermal stability and dielectric properties of barium titanate and carbon allotropes-based polymer (PVDF) composites for energy storage applications." *Inorganic Chemistry Communications* 173 (2025): 113880.

2. Ullah, S., Hussain, S., Shah, N. A., **Ahmad, W.**, & Akitsu, T. (2025). Graphene oxide and hydroxyapatite-based composite extracted from fish scale: Synthesis, characterization and water treatment application. *Journal of Molecular Liquids*, 417, 126577.
3. **Ahmad, Waqas**, Sadia Fida, Imtiaz Ahmad, Razia Tariq, Badrul Mohamed Jan, Fida Hussain, George Kenanakis, and Rabia Ikram. "Ex-situ Synthesis of B4C and MgAl2O4 incorporated Waste Polystyrene (wPS) Composites with Improved Thermal and Mechanical Properties." *Emergent Materials* (2024): 1-15.
4. Ilyas, Muhammad, Hizbullah Khan, and **Waqas Ahmad**. "Conversion of waste plastics into carbonaceous adsorbents and their application for wastewater treatment." *International Journal of Environmental Analytical Chemistry* 104, no. 10 (2024): 2432-2450.
5. Mohammad, Nisar, Muhammad Faizan, Zeeshan Zia, Iftikhar Ahmad, Muhammad Emmad Ul Hassan Awan, Ayesha Roedar, and **Waqas Ahmad**. "Recovery of Cu from waste smelting slag through extraction with novel deep eutectic solvents (DESs)." *Canadian Metallurgical Quarterly* (2024): 1-8.
6. Khan, R., Haram, Z., **Ahmad, W.**, Sohni, S., Xu, J., & Ilyas, M. (2024). Removal of hydrocarbon pollutants from refinery wastewater using N-hexadecylchitosan as an efficient adsorptive platform. *Scientific Reports*, 14(1), 17236.
7. **Ahmad, W.**, Salman, M., Ahmad, I., & Yaseen, M. (2024). Process for desulfurization and demineralization of low rank coal using oxidation assisted froth floatation technique. *Chemical Engineering Research and Design*, 205, 301-311.
8. Muhammad, T., **Ahmad, W.**, Ahmad, I., & Yaseen, M. (2024). Integrated oxidative-adsorptive desulfurization of model and real fuel oils over a Zn-impregnated hydroxyapatite-activated carbon (Zn/HA-AC) composite. *Journal of Sulfur Chemistry*, 1-22.
9. Ali, H., Uzair, M., Iqbal, Y., Ali, M., & **Ahmad, W.** (2023). Electrical properties of Barium titanate and graphite incorporated PVA matrix composite (PVA-BaTiO₃-G) nanofibers. *Materials Science and Engineering: B*, 296, 116655.
10. Ahmad, I., **Ahmad, W.**, Sohail, S. M., & Yasin, A. (2023). Effect of chemical dispersion on distribution of distillates cuts in various crude oil samples. *Petroleum Science and Technology*, 41(8), 834-849.
11. **Ahmad, W.**, Ullah, S., Ahmad, I., Muhammad, T., Ren, Y. S., & Ilyas, M. (2023). Batch mode and continuous flow adsorption of hydrocarbon pollutants from refinery wastewater using graphene oxide derived from fish scales. *Environmental Science: Water Research & Technology*.
12. **Ahmad, W.**, Rahman, A. U., Ahmad, I., Subhan, S., & Yaseen, M. (2023). Preparation of Fe₂O₃, NiO₂, and ZnO supported montmorillonite clay for oxidative desulfurization of transportation fuels in O₂/CH₃COOH oxidation system. *Petroleum Science and Technology*, 41(12), 1292-1311.
13. Ul Haq, I., **Ahmad, W.**, Ahmad, I., Shah, A., Yaseen, M., & Muhammad, T. (2023). Integrated Photocatalytic Oxidation and Adsorption Approach for the Robust Treatment of Refinery Wastewater Using Hybrid TiO₂/AC. *Catalysts*, 13(1), 193.
14. Ullah, S., Khan, K., Farooq, M. U., **Ahmad, W.**, Naeem, M., Subhan, F., & Yaseen, M. (2022). Perspectives on advances in the catalytic desulfurization and denitrogenation of transportation fuel oils using graphitic carbon nitride and boron nitride. *Energy & Fuels*, 36(16), 8900-8924.
15. **Ahmad, W.**, Ahmad, I., Ahmad, I., Yaseen, M., Muhammad, N., & Salman, M. (2022). 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*, 42(8), 2260-2276.

16. Ahmad, I., Jabeen, N., & **Ahmad, W.** (2022). Fabrication and characterization of boron carbide/polymethyl methacrylate composites. *Fullerenes, Nanotubes and Carbon Nanostructures*, 30(7), 727-734.
17. Yaseen, M., Khattak, S., Ullah, S., Subhan, F., **Ahmad, W.**, Shakir, M., & Tong, Z. (2022). Oxidative desulfurization of model and real petroleum distillates using Cu or Ni impregnated banana peels derived activated carbon–NaClO catalyst–oxidant system. *Chemical Engineering Research and Design*, 179, 107-118.
18. Ikram, R., Jan, B. M., **Ahmad, W.**, Sidek, A., Khan, M., & Kenanakis, G. (2022). Rheological Investigation of Welding Waste-Derived Graphene Oxide in Water-Based Drilling Fluids. *Materials*, 15(22), 8266.
19. Yaseen, M., **Ahmad, W.**, Farooq, M. U., Shakir, M., & Naeem, A. (2022). Preparation of an rGO and iron oxide nanoparticle-incorporated polyvinyl acetate based membrane for the removal of Pb²⁺ from anticorrosive paint industrial wastewater. *Environmental Science: Water Research & Technology*, 8(9), 1895-1909.
20. Ahmad, I., Ullah, J., Khan, R., & **Ahmad, W.** (2022). Antioxidant Performance of Bio-oils in Oxidative Stability of Base Lubricating Oil Determined through TGA and PDSC Techniques. *Thermochimica Acta*, 179241.
21. Muhammad Ilyas, Hizbullah Khan & **Waqas Ahmad** (2022) Conversion of waste plastics into carbonaceous adsorbents and their application for wastewater treatment, *International Journal of Environmental Analytical Chemistry*, DOI: 10.1080/03067319.2022.2062571
22. **Waqas Ahmad**, Zakia Amin, Tanzil ur Rehman, Fida Hussain, Muhammad Ilyas. (2022) Treatment of dyes contaminated water using surfactants modified activated carbon derived from rice husk. *Desalination and Water Treatment*, 248, 288–299. doi: 10.5004/dwt.2022.28115
23. Ilyas, M., **Ahmad, W.**, & Khan, H. (2021). Utilization of activated carbon derived from waste plastic for decontamination of polycyclic aromatic hydrocarbons laden wastewater. *Water Science and Technology*, 84(3), 609-631.
24. Ilyas, M., **Ahmad, W.**, & Khan, H. (2021). Polycyclic aromatic hydrocarbons removal from vehicle-wash wastewater using activated char. *Desalination and Water Treatment*, 236, 55-68.
25. **Ahmad, W.**, Ahmad, Q., Yaseen, M., Ahmad, I., Hussain, F., Mohamed Jan, B., & Kenanakis, G. (2021). Development of Waste Polystyrene-Based Copper Oxide/Reduced Graphene Oxide Composites and Their Mechanical, Electrical and Thermal Properties. *Nanomaterials*, 11(9), 2372.
26. Muhammad, N., **Ahmad, W.**, Khan, M., Salman, M., & Ali, A. (2021). Purification and Removal of Hematite from Talc by Acid Leaching Assisted by Chlorination Techniques. *Mining, Metallurgy & Exploration*, 1-9.
27. Ilyas, M., **Ahmad, W.**, Khan, H., & Yousaf, S. (2021). Potentially poisonous elements removal from vehicle-wash wastewater and aqueous solutions using composite adsorbents. *Desalination and Water Treatment*, 224, 331-342.
28. Yaseen, M., Ullah, M., Subhan, S., **Ahmad, W.**, Subhan, F., & Shakir, M. (2021). Recovery and Characterization of Useful Benzene Derivatives from Spent Engine Oil through Solvent Extraction. *Chemical Engineering Research and Design*.
29. Ulhaq, I., **Ahmad, W.**, Ahmad, I., Yaseen, M., & Ilyas, M. (2021). Engineering TiO₂ supported CTAB modified bentonite for treatment of refinery wastewater through simultaneous photocatalytic oxidation and adsorption. *Journal of Water Process Engineering*, 43, 102239.
30. 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.
31. **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* **2021**, 14(4), 1037.

32. 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.
33. **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.
34. 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.
35. **Ahmad, W.**, Kaiser, 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.
36. 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.
37. **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.
38. 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
39. 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.
40. 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.
41. 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.
42. 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.
43. 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.
44. 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.
45. 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.
46. 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.
47. 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.
48. **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.

49. **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.
50. 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*, 33(4), 383-406.
51. 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.
52. 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.
53. 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.
54. 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.
55. 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.
56. 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.
57. **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.
58. 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 into potential automotive fuels. *Journal of Analytical and Applied Pyrolysis*, 126, 247-256.
59. 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.
60. 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.
61. 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.
62. **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
63. 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.
64. 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.
65. 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.
66. 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.

67. 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).
68. 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.
69. 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.
70. 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
71. 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
72. 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
73. IMTIAZ Ahmad, **WAQAS Ahmad**, MUHAMMAD Ishaq. Desulphurization of model and commercial oil using air assisted performic acid oxidation system in the presence of emulsion catalysts. *Chinese Journal of Catalysis*, 2013, 34, 1839-1847.)..
74. Imtiaz Ahmad, M. Ismail Khan, M. Ishaq, Hizbullah Khan, Kashif Gul, **Waqas Ahmad**. Catalytic efficiency of some novel nanostructured heterogeneous solid catalysts in pyrolysis of HDPE. *Polymer Degradation and Stability*. 2013, 98, 2512-2519.
75. 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)
76. 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.
77. 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.
78. 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.
79. 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)
80. 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.

Papers Presented in Conferences

1. Waqas Ahmad, “Oxidative desulfurization of liquid fuels in the presence of long alkyl chain Cu-carboxylates as oxidation and phase transfer catalysts” 7th Chemistry Conference 2015 on Chemistry in Engineering & Life Sciences, 24-26 November 2015, Organized by Chemistry Division, PINSTECH, UML, NCC, CPC and PIEAS, Islamabad, Pakistan.
2. Waqas Ahmad, “Increasing the oxidative Stability of lubricating base Oil using biomass derived antioxidants” 9th Chemistry Conference 2015 on Chemistry in Engineering & Life Sciences, 17-

21 September 2017, Organized by Chemistry Division, PINSTECH, UML, NCC, CPC and PIEAS, Islamabad, Pakistan.

3. Waqas Ahmad, "Desulphurization of transportation fuels by per-formic acid oxidant using MoO_x loaded on ZSM-5 catalyst" The Int'l Conference on Petrochemical, Energy Conservation and Emissions Reduction (PECER 2017), December 1-3, 2017, Sanya, China.
4. Waqas Ahmad, "Desulphurization of heavy distillate fuels using air assisted performic acid oxidation system" 4th Conference on Sustainability in Process Industry (SPI-2018), University of Engineering & Technology, Peshawar.
5. Waqas Ahmad, Fida Hussain, "Catalytic Oxidative Desulfurization of Petroleum Distillates over Metal Oxides Catalysts" Eighth International Conference on Environmentally Sustainable Development ESDev – 2019, 21-23 August 2019, Department of Environmental Sciences, CUI-Abbottabad Campus, Pakistan

Patents Filed:

1. Muhammad Yaseen, Waqas Ahmad, Maria, Muhammad Usman Farooq, Muhammad Shakir, Muhammad Naeem, Preparation of rGO and Iron Oxide Nanoparticles Incorporated Polyvinyl Acetate based Mixed Matrix Membrane for the Treatment of Industrial wastewater. IPO-Pakistan (Filed in July 2021).
2. Waqas Ahmad, Imtiaz Ahmad, Muhammad Yaseen, Muhammad Salman, Process for Desulfurization and demineralization of low rank Coal using oxidation assisted froth floatation technique, IPO-Pakistan. (Filed in November 2021).

Authorship/ Contribution in books

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 (Completed).
3. **Treatment of Oily wastewater by simultaneous Catalytic Photochemical Oxidation and Adsorption Techniques**, (6.4 Million PKR) Funded by HEC under NRPU program. 2019. (Completed).
4. **Development of hydrometallurgical process to extract copper and associated valuable metals from Saindak smelter slag (PHASE-1)**, Role Co-PI, (3.006 million PKR) Funded by Pakistan Science Foundation, 2023.(In-progress)

Students Supervision

Category	Completed	In Progress
PhD	02 (as Supervisor)	04
	02 (As Co-supervisor)	-
MS/MPhil	13 (as Supervisor)	05
	03 (As Co-supervisor)	-
BS/MSc	16 (As Supervisor)	05

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

My Contribution as a reviewer, with following journals and many more:

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

REFERENCES

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