

**Name:** **Muhammad Sadiq**



Professor (Tenured)  
Department of Chemistry  
University of Malakand  
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**Specialization/Research:** **Physical Chemistry/Heterogeneous Catalysis**

- Synthesis of new (metal, metal oxide or carbon based) catalyst for valorization of biomass, transformation of oil/natural gas into non-fuel compounds and water splitting
- Synthesis of photocatalyst for removal of pollutants from the environment
- Synthesis of hybrid materials for carbon capture and utilization
- In-depth understanding of associated chemical interactions through calculation/simulation

<b>Experience</b>				
S. No	Designation	Duration	Institute	Funding Agency
01	Professor (Tenured)	Continue	Department of Chemistry, University of Malakand	University of Malakand
02	Research Professor	October 2021	Prof. Kim Chang Min, Surface Chemistry Lab, Department of Chemistry, Kyungpook National University, South Korea	University of Malakand
03	Research Professor	Jan - April, 2019	Prof. Kim Chang Min, Surface Chemistry Lab, Department of Chemistry, Kyungpook National University, South Korea	University of Malakand
04	Visiting Professor	1 month (2017)	Prof. Sang Il Choi, Department of Chemistry, Kyungpook National University, South Korea	PPCR, HEC, Pakistan
05	Associate Professor (Tenured)	June 2017- Cont.. HEC endorsement Oct 2018	Department of Chemistry, University of Malakand	University of Malakand
06	Assistant Professor (TTS)	Feb 2010- June 2017	Department of Chemistry, University of Malakand	University of Malakand
07	Res. Associate	6 months (2008-2009)	Prof. Pher G. Andersson, Department of Biochemistry and Organic Chemistry, BMC, Uppsala University, Sweden	IRSIP, HEC, Pakistan
08	Res. Associate (PhD-2009)	3years	Prof. M. Ilyas, NCE in Physical Chemistry, University of Peshawar	NCE in Physical Chemistry
09	Res. Associate (MPhil-2005)	2years	Prof. M. Ilyas, NCE in Physical Chemistry, University of Peshawar	NCE in Physical Chemistry

## Awards

S.No	Name of Award	Year	Awarding Agency
1	Productive Scientist Award	2010	Ministry of Science and Technology Islamabad, Pakistan
2	Productive Scientist Award	2011	Ministry of Science and Technology Islamabad, Pakistan
3	Productive Scientist Award	2012	Ministry of Science and Technology Islamabad, Pakistan
4	1 <sup>st</sup> Research Award	2015	Office of Research, Innovation & Commercialization, University of Malakand
5	1 <sup>st</sup> Research Award	2015	Office of Research, Innovation & Commercialization, University of Malakand
6	Certificate of appreciation	2022	Yar Steel Mills, Chakdara-18800, Pakistan Collaborative Research “Utilization of Ash Carbon for Fine Chemicals”
7	Certificate of appreciation	2022	Yar Steel Mills, Chakdara-18800, Pakistan Collaborative Research “HKUST-1 for CO <sub>2</sub> Capturing and Utilization”
8	Certificate of appreciation Best Researcher Award	2022	Office of Research, Innovation & Commercialization, University of Malakand (Award Ceremony, 2023)
9	Certificate of appreciation Best Researcher Award	2023	Office of Research, Innovation & Commercialization, University of Malakand (Award Ceremony, 2024)

## Publications

No	Authors	Title	Journal	Vol	Page	Year
1	Mian Hussain Shah, Saima Sadiq, Inam Ullah, Aadil Nabi Chishti, Zahoor Iqbal, and Muhammad Sadiq	Effect of Metal Doping on the Band Gap Energy of Zirconia: Photocatalytic Degradation of Acid Red 4 <a href="https://doi.org/10.1002/slct.202501653">doi.org/10.1002/slct.202501653</a>	<i>ChemistrySelect</i>		online	2025
2	Mian Hussain Shah, Saima Sadiq, Umar Wahab, Inam Ullah, Sardar Hussain, Nasr Ullah, Safiullah Khan, Zaffar Iqbal, Muhammad Ismail, Aadil Nabi Chishti, Muhammad Sadiq	Investigating the Effect of Sn and Pt Doping and Co-doping on the Photocatalytic Efficiency of Zirconia for Degradation of Acid Yellow-76 <a href="https://doi.org/10.1007/s11270-025-08397-x">https://doi.org/10.1007/s11270-025-08397-x</a>	<i>Water Air Soil Pollut</i>	236	811	2025:
3	Bushra Bostan, Inam Ullah, Mian Muhammad, Muhammad Sadiq, Saman Ara Gu	Multifunctional N-doped fluorescent carbon dots for cholesterol monitoring at ultra-low concentration and dye degradation <a href="https://doi.org/10.1016/j.nxmte.2025.100956">https://doi.org/10.1016/j.nxmte.2025.100956</a>	<i>Next Materials</i>	9	100956	2025
4	I. Ullah, S. Sadiq, U. Ali, M. Ismail, M. Sadiq	Investigating the efficacy of Palladium Doped Ceria for the Photodegradation of Azo Dyes <a href="https://doi.org/10.1016/j.molstruc.2024.140509">https://doi.org/10.1016/j.molstruc.2024.140509</a>	Journal of Molecular Structure	1322	140509	2025
5	M. Ali, T. Gul, I. Khan, S. Ali, M. Sadiq, K. Saeed	Photocatalytic degradation of methylene blue dye using Ba-doped MnO nanoparticles <a href="https://doi.org/10.1080/01932691.2024.2380036">https://doi.org/10.1080/01932691.2024.2380036</a>	Journal of Dispersion Science and Technology		online	2024
6	Bibi, S., Shakir, N., Sadiq, M., Sadiq, S., Ullah, I., Khan, Q., Bostan, B. and Ismail, M.,	Investigating the Structural, Dielectric, Optical and Photocatalytic Properties of Carbon Dots and Palladium, Platinum Decorated Carbon Dots. <a href="https://doi.org/10.1016/j.molstruc.2024.138488">https://doi.org/10.1016/j.molstruc.2024.138488</a>	<i>Journal of Molecular Structure</i>	1312	138488	2024
7	M Bibi, M Sadiq, M. A. Rizk, R. A. Alsaieri, Z. Iqbal, Z Ali	Tuning the Magnetic and Catalytic Properties of Manganese Ferrite through Zn <sup>+2</sup> Doping: Gas Phase Oxidation of Octanol <a href="https://doi.org/10.3390/catal13121473">https://doi.org/10.3390/catal13121473</a>	Catalysts	13	1473	2023
8	H. M. Ali, K. Karam, T. Khan, S. Wahab, S. Ullah, M. Sadiq	Reactive oxygen species induced oxidative damage to DNA, lipids, and proteins of antibiotic-resistant bacteria by plant-based silver nanoparticles	3 Biotech		online	2023

9	Umar Wahab, Saima Sadiq, Zaffar Iqbal, Muhammad Sadiq, Chang Min Kim, Sher Ali Khan, Adan Ali Khan	Tailoring Chemoselectivity of Fe/Ni Catalyst for Hydrogenation of Carbonyl Compound <a href="https://doi.org/10.1016/j.cattod.2023.114278">https://doi.org/10.1016/j.cattod.2023.114278</a>	Catalysis Today	423	114278	2023
10	Ubaid Ur Rahman, Muhammad Humayun, Abbas Khan, Saima Farooq, Muhammad Sadiq, Mohamed Bououdina, Nasrullah Shah	Thermo-Chemical Modification of Cellulose for the Adsorptive Removal of Titan Yellow from Wastewater <a href="https://doi.org/10.3390/molecules28093955">https://doi.org/10.3390/molecules28093955</a>	Molecules		online	2023
11	Muhammad Sadiq, Sang- Il Choi, Saima Sadiq, Taskeen Mahmood, Sadia Qazi, Idrees Khan, Zaffar Iqbal, Razia Aman	Investigating Hydrogenation of Aldehyde and Heck Reaction on the Surface of Recyclable Palladium Decorated Functionalized Mica <a href="https://doi.org/10.1007/s13369-023-07828-3">https://doi.org/10.1007/s13369-023-07828-3</a>	Arabian Journal for Science and Engineering	48	7771	2023
12	S. Khan, I. Khan, M. Sadiq, N. Muhammad	Experimental and theoretical photocatalytic potential of binary NiTiO <sub>2</sub> and ternary CdNiTiO <sub>2</sub> nanocomposites of TiO <sub>2</sub> <a href="https://doi.org/10.1016/j.inoche.2023.110556">https://doi.org/10.1016/j.inoche.2023.110556</a>	Inorganic Chemistry Communications		online	2023
13	Rehman, N., Haq, M. I. U., Ullah, H., Sadiq, M., & Mian, I. U.	Effect of polylactic acid on the micellization of SDS and CTAB: physicochemical studies on surfactants aggregation <a href="https://doi.org/10.1515/zpch-2022-0145">https://doi.org/10.1515/zpch-2022-0145</a>	Zeitschrift für Physikalische Chemie.		online	2023
14	Khan, S., Noor, A., Khan, I., Muhammad, M., Sadiq, M., & Muhammad, N.	Photocatalytic Degradation of Organic Dyes Contaminated Aqueous Solution Using Binary CdTiO <sub>2</sub> and Ternary NiCdTiO <sub>2</sub> Nanocomposites <a href="https://doi.org/10.3390/catal13010044">https://doi.org/10.3390/catal13010044</a>	Catalysts		online	2023
15	N. A. Khan, K. Saeed, I. Khan, T. Gul, M. Sadiq, A. Uddin, I. Zekker	Efficient photodegradation of orange II dye by nickel oxide nanoparticles and nanoclay supported nickel oxide nanocomposite <a href="https://doi.org/10.1007/s13201-022-01647-x">https://doi.org/10.1007/s13201-022-01647-x</a>	Applied Water Science		online	2022
16	N. Khan, I. Khan, N. Zada, M. Sadiq, K. Saeed	Utilization of cross-linked chitosan for cobalt adsorption and its reutilization as a photocatalyst for the photodegradation of methyl violet dye in aqueous medium <a href="https://doi.org/10.1007/s13201-022-01633-3">https://doi.org/10.1007/s13201-022-01633-3</a>	Applied Water Science		online	2022
17	S. Khan, M. Sadiq, D. Kim, M. Ullah, N. Muhammad	TiO <sub>2</sub> and its binary Zn iO <sub>2</sub> and ternary CdZnTiO <sub>2</sub> nanocomposites as efficient photocatalysts for the organic dyes degradation <a href="https://doi.org/10.1007/s13201-022-01628-0">https://doi.org/10.1007/s13201-022-01628-0</a>	Applied Water Science		online	2022
18	S. Khan, M. Sadiq, N. Muhammad	Enhanced photocatalytic potential of TiO <sub>2</sub> nanoparticles in coupled CdTiO <sub>2</sub> and ZnCdTiO <sub>2</sub> nanocomposites <a href="https://doi.org/10.1007/s11356-022-19807-6">https://doi.org/10.1007/s11356-022-19807-6</a>	Environmental Science and Pollution Research		online	2022
19	Z. Iqbal, M. Sadiq, S. Sadiq, K. Saeed	Selective hydrogenation of cinamaldehyde to cinamayl alcohol over palladium/zirconia in microwave protocol <a href="https://doi.org/10.1016/j.cattod.2021.08.010">https://doi.org/10.1016/j.cattod.2021.08.010</a>	Catalysis Today			2021
20	M. Sadiq, I. Ullah, Z. Iqbal, A. Wahid, A. Umar, Z. Iqbal, K. Saeed	Preparation and characterization of catalysts and its application in microwave assisted degradation of Acid Orange-8 <a href="https://doi.org/10.5004/dwt.2021.27450">https://doi.org/10.5004/dwt.2021.27450</a>	Desalination and Water Treatment	231	407-414	2021
21	K. Saeed, I. Khan, M. Ahad, T. Shah, M. Sadiq, A. Zada, N. Zada	Preparation of ZnO/Nylon 6/6 nanocomposites, their characterization and application in dye decolorization <a href="https://doi.org/10.1007/s13201-021-01442-0">https://doi.org/10.1007/s13201-021-01442-0</a>	Applied Water Science	11	105	2021
22	Z. Iqbal, S.Sadiq, M. Sadiq, I. Khan, K Saeed	Effect of Microwave Irradiation on the Catalytic Activity of Tetragonal Zirconia: Selective Hydrogenation of Aldehyde <a href="https://doi.org/10.1007/s13369-021-05712-6">https://doi.org/10.1007/s13369-021-05712-6</a>	Arabian Journal for Science and Engineering			2021
23	K. Saeed, N. Khan, T. Shah and M. Sadiq	Morphology, Properties and Application of Iron Oxide/Polycaprolactone Nanocomposites <a href="https://doi.org/10.52568/000553/JCSP/43.01.2021">doi.org/10.52568/000553/JCSP/43.01.2021</a>	J.Chem.Soc.Pak	43	34-40	2021
24	Sadiq et al.	Catalytic Hydrogenation of Carbon Dioxide over Magnetic Nanoparticles: Modification in Fixed-Bed Reactor <a href="https://doi.org/10.3390/catal11050592">https://doi.org/10.3390/catal11050592</a>	Catalysts	11	592	2021
25	Z. Iqbal, M. Sadiq, M. Sufaid	Functionalized multi walled carbon nanotubes	Journal of King	33	101273	2021

	Khan, T. Iqbal, M. Ali, M. Zahoor, R. Ullah, H.S. Almoallim, S. Ali Alharbi	supported copper-titania nanoparticles for oxidation of Cinnamyl Alcohol under mild reaction conditions <a href="https://doi.org/10.1016/j.jksus.2020.101273">https://doi.org/10.1016/j.jksus.2020.101273</a>	Saud University - Science			
26	T. Gul, I. Khan, S. Ali, M. Sadiq, K. Saeed	Synthesis and characterization of Mn-Pt/AC nanoparticles and their photocatalytic and antibacterial applications <a href="https://doi.org/10.1080/01932691.2020.1844732">https://doi.org/10.1080/01932691.2020.1844732</a>	Journal of Dispersion Science and Technology			2020
27	I. Khan, N. Zada, I. Khan, M. Sadiq, K. Saeed	Enhancement of photocatalytic potential and recoverability of Fe <sub>3</sub> O <sub>4</sub> nanoparticles by decorating over monoclinic zirconia <a href="https://doi.org/10.1007/s40201-020-00563-z">https://doi.org/10.1007/s40201-020-00563-z</a>	Journal of Environmental Health Science and Engineering			2020
28	I. Khan, K. Saeed, N. Ali, I. Khan, B. Zhang, M. Sadiq	Heterogeneous Photodegradation of Industrial Dyes: An Insight to Different Mechanism and Rate Affecting Parameters, <a href="https://doi.org/10.1016/j.jece.2020.104364">https://doi.org/10.1016/j.jece.2020.104364</a>	Journal of Environmental Chemical Engineering			2020
29	I. Khan, A. A. Khan, I. Khan, M. Usman, M. Sadiq, F. Ali, K. Saeed	Investigation of Photocatalytic Potential Enhancement of Silica monolith decorated Tin oxide Nanoparticles through Experimental and theoretical study <a href="https://doi.org/10.1039/D0NJ00996B">https://doi.org/10.1039/D0NJ00996B</a>	New Journal of Chemistry			2020
30	Z. Iqbal, S. Sadiq, M. Sadiq, M. Ali, K. Saeed, N. Rehman, M. Ilyas, S. Ullah, S. U. Jan, I. Ahmad, M. H. Shah	Synergetic Effect of Calcium Doping on Catalytic Activity of Manganese Ferrite: DFT Study and Oxidation of Hydrocarbon <a href="https://doi.org/10.3390/cryst10040335">https://doi.org/10.3390/cryst10040335</a>	Crystals	10	335	2020
31	S. Sadiq, M. Sadiq, K. Saeed, N. Rehman, Q. Ali	Correlation of Thermal Conductivity with Catalytic Activity of Nanoparticles: Oxidation of Benzyl Alcohol, <a href="https://doi.org/10.1007/s11144-020-01784-x">https://doi.org/10.1007/s11144-020-01784-x</a>	Reaction Kinetics, Mechanisms and Catalysis	130	289	2020
32	T. Shah, M. Sadiq, K. Saeed	Synthesis and characterization of graphene nanoplates supported silver nanoparticles with enhanced photocatalytic activity <a href="https://doi.org/10.1007/s10854-019-02560-x">https://doi.org/10.1007/s10854-019-02560-x</a>	Journal Materials Science: Materials in Electronics	31	560	2020
33	M. A. Motin, M. Sadiq, C. M. Kim	Reaction of CH <sub>3</sub> CH <sub>2</sub> OH and H on a ZnO Single Crystal Surface, <a href="https://doi.org/10.1002/bkcs.11890">https://doi.org/10.1002/bkcs.11890</a>	Bulletin of the Korean Chemical Society	40	1226	2019
34	Z. Iqbal, S. Sadiq, M. Sadiq, I. Ullah, Z. Fazal, D. Khan, N. Bibi, K. Saeed, A. A. Khan, F. Mabood, M. Ali	Extending the Hierarchy of Heterogeneous Catalysis to Substituted Derivatives of Benzimidazole Synthesis: Transition Metals Decorated CNTs, doi:10.3390/catal9121000	Catalysts	9	1000	2019
35	R. Aman, S. Sadiq, M. Ali, M. Sadiq, J. Gul, K. Saeed, A. A. Khan, S. H. Shah	Facile Route for Green Synthesis of N-Benzylideneaniline Over Bimetallic Reduced Graphene Oxide: Chemical Reactivity of 2,3,4 Substituted Derivatives of Aniline DOI :10.1007/s11164-019-03772-w	Research on Chemical Intermediates	45	2947	2019
36	I. Khan, M. Sadiq, I. Khan, K. Saeed,	Manganese dioxide nanoparticles/activated carbon composite as efficient UV and visible-light photocatalyst <a href="https://doi.org/10.1007/s11356-018-4055-y">https://doi.org/10.1007/s11356-018-4055-y</a>	Environmental Science and Pollution Research	26	5140	2019
37	R. Aman, A. Clearfield, M. Sadiq, Z. Ali	HKUST-1 Supported on Zirconium Phosphate as an Efficient Catalyst for Solvent Free Oxidation of Cyclohexene: DFT Study <a href="https://doi.org/10.3390/catal8110546">https://doi.org/10.3390/catal8110546</a>	Catalysts	8	546	2018
38	K. Saeed, N. Zada, I. Khan, M. Sadiq	Synthesis, Characterization and Photodegradation Application of Fe-Mn and F-MWNTs supported Fe-Mn nanoparticles doi: 10.5004/dwt.2018.22010	Desalination and Water Treatment	108	362	2018
39	K. Saeed, M. Sadiq, I. Khan, S. Ullah, N. Ali, A. Khan	Synthesis, characterization, and photocatalytic application of Pd/ZrO <sub>2</sub> and Pt/ZrO <sub>2</sub> , DOI: 10.1007/s13201-017-0535-3	Applied Water Science	8	60	2018
40	M. Sadiq, M. Khan, R. Aman, S. Sadiq, M. S. Ahmad, M. Ali, R. Ali	Thermodynamic and kinetic studies of adsorptive removal of toluidine blue by activated carbon from olive pit DOI: 10.5004/dwt.2017.20847	Desalination and Water Treatment	78	292	2017
41	M. Sadiq, M. Khan, R. Aman, S. Hussain, M. S. Ahmad, S. Sadiq, M. A. Zia, H. Rashid, R. Ali	Tuning of activated carbon for solvent-free oxidation of cyclohexane doi.org/10.1155/2017/5732761	Journal of Chemistry	--	--	2017
42	M. Sadiq, M. Khan, K. Saeed,	Liquid phase oxidation of cinnamyl alcohol to	Journal of	539	97	2017

	S. Sadiq	cinnamaldehyde using multiwall carbon nanotubes decorated with zinc-manganese oxide nanoparticles <a href="https://doi.org/10.1016/j.apcata.2017.04.007">https://doi.org/10.1016/j.apcata.2017.04.007</a>	Applied Catalysis A: General			
43	K Saeed, I Khan, T Gul, M Sadiq	Efficient photodegradation of methyl violet dye using TiO <sub>2</sub> /Pt and TiO <sub>2</sub> /Pd photocatalysts DOI 10.1007/s13201-017-0535-3	Applied Water Science	7	3841	2017
44	H. Rashid, M. S. Ahmad, M. Sadiq, R. Aman	Potent Heterogeneous Catalyst for Low Temperature Selective Oxidation of Cyclohexanol by Molecular Oxygen <a href="https://doi.org/10.1155/2016/1254796">doi.org/10.1155/2016/1254796</a>	Journal of Chemistry	--	--	2016
45	H. Rashid, M. Sadiq, M. A. Zia, S. Sadiq, M. S. Ahmad, R. Aman, M. Humayun, R. Ali	Photooxidation of Toluene: Correlation of Noble Metal Loading on Titania and Activation Energy <a href="https://doi.org/10.1155/2016/4231467">doi.org/10.1155/2016/4231467</a>	Journal of Chemistry	--	--	2016
46	M. N. Umar, M. Shoaib, M. Sadiq, M. Ayaz, S. Miskeen, I. Shah, I. Khan, H. Rahid, I. Ilahi, S. W. Khan	Synthesis and pharmacological properties of 1,3-bis[(s)phenylethyl]imidazolidine-2-thione	Pharmaceutical Chemistry Journal	50	382	2016
47	S. Hussain, M. Sadiq	Liquid Phase Aerobic Oxidation of Cinnamyl Alcohol to Cinnamaldehyde: Effect of Different Solvents DOI: 10.2174/2211544705666160805125241	Current Catalysis	5	236	2016
48	K. Saeed, I. Khan, M. Sadiq	Synthesis of Graphene supported bimetallic nanoparticles for the sunlight photodegradation of basic green 5 dye in aqueous medium	Separation Science and Technology	51	1421	2016
49	S. Saima, A. Zahid, A. Iftikhar, K. Imad, R. Gul, M. Sadiq, R. Najeeb	Structural, Mechanical and Magneto-Electronic Properties of the Ternary Sodium Palladium and Platinum Oxides	Z. Naturforsch A	70	815	2015
50	M. Sadiq, M. Ali, A. Razia, R. Haroon, M. N. Umar.	Kinetic Study of Selective Gas-Phase Oxidation of Isopropanol to Acetone Using Monoclinic ZrO <sub>2</sub> as a Catalyst	Quim. Nova	38	891	2015
51	M. Sadiq, M. Ali, R. Iqbal, K. Saeed, A. Khan, M. N. Umar, H. Rashid	Efficient Aerobic Oxidation of Cyclohexane to KA Oil Catalyzed by Pt-Sn Supported on MWCNTs DOI 10.1007/s12039-015-0877-z	Journal of Chemical Science	127	1167	2015
52	M. Ilyas, M. Saeed, M. Sadiq, M. Siddique	Mixed-valence manganese oxide catalyzed oxidation of benzyl alcohol and cyclohexanol in the liquid phase	Progress in Reaction Kinetics and Mechanism	39	375	2014
53	M. Sadiq, M. Ilyas, S. Alam, H. Khaliq	Zirconia Supported Iron as an Efficient Green Catalyst for the Selective Liquid Phase Solvent Free Oxidation of Alcohol with Molecular Oxygen	Tenside Surf. Det	50	125	2013
54	M. Sadiq, M. Ilyas, S. Alam	Investigating the Catalytic Activity of Monoclinic Zirconia; Oxidation of Benzyl Alcohol in Aqueous Medium at Mild Conditions	Tenside Surf. Det	49	37	2012
55	S. Alam, A. Ullah, M. Khan, M. Sadiq, H. Zahid, A. Noor	Removal of Lead from Aqueous Solution by an Efficient Low Cost Biosorbent	Tenside Surf. Det	50	100	2012
56	M. Sadiq, S. Alam, F. Mabood, F. K. M. Ilyas	Investigating the Activity of Zirconia as a Catalyst and a Support for Noble Metals, in Green Oxidation of Cyclohexane	Tenside Surf. Det	49	32	2012
57	S. Alam, F. Mabood, M. Sadiq, A. Noor, F. K. Bangash	Removal of Triphenylmethane Dye from Aqueous Solution by Carbonaceous Adsorbent	Tenside Surf. Det	48	134	2011
58	F. Mabood J. Shah, R. Jan, R. Jabeen, S. Alam, M. Sadiq	Catalytic conversion of waste inner tube rubber (isobutylene isoprene) into valuable products	Journal of the Chemical Society of Pakistan	32	767	2010
59	S. Alam, F. Mabood, M. Sadiq, F. K. Bangash	Adsorption of Azo dye on Activated Carbon Prepared from Waste Wood: 2. Equilibrium	Journal of the Chemical Society of Pakistan	32	695	2010
60	M. Sadiq, M. Ilyas	Pt/ZrO <sub>2</sub> : An Efficient Catalyst for Aerobic Oxidation of Toluene in Aqueous Solution	Chinese Journal of Chemistry	28	2216	2010
61	M. Ilyas, M. Sadiq	Oxidation of Toluene to Benzoic Acid Catalyzed by Platinum Supported on Zirconia in the Liquid Phase-Solvent Free Conditions	Catalysis Letter	128	337	2009
62	M. Ilyas, M. Sadiq	Kinetics of Heterogeneous Solvent-free Liquid Phase Oxidation of Alcohol Using ZrO <sub>2</sub> Catalyst with Molecular Oxygen	Chinese Journal of Chemistry	26	941	2008
63	M. Ilyas, M. Sadiq	Liquid Phase Aerobic Oxidation of Benzyl Alcohol Catalyzed by Pt/ZrO <sub>2</sub>	Chemical Engineering and Technology	30	1391	2007

64	M. Ilyas, M. Sadiq, K. Imdad	Liquid-Phase Oxidation of Alcohols Catalyzed by ZrO <sub>2</sub> under Solvent Free Conditions	Chinese Journal of Catalysis	28	413	2007
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No	National/ International	Title	Patent Application No
1	National	Unconventional hybrid materials for carbon capture and utilization	537/2024 (submitted)
2	National	Microwave assisted catalytic conversion of carbonyl compound to alcohol	Submitted

Projects					
No	Funding Agency	Title	Role	Project No	Worth/ million
1	HEC, Pakistan	<i>Green oxidation of alcohols in the liquid phase with oxygen catalyzed by reduced and unreduced iron supported on zirconia</i>	PI	20-1604/R&D/09219 8	5.7
2	HEC, Pakistan	<i>Preparation and characterization of catalytically efficient activated carbon for liquid phase aerobic oxidation of alcohol</i>	PI	20-1897/NRPU/R&D/HEC/116806	2.8
3	HEC, Pakistan	<i>Highly efficient and recoverable catalysts adsorbed on zirconia for carbon carbon bond connecting reactions</i>	Co. PI	PM-IPFP/HRD/HEC/2011/373	0.47
4	HEC, Pakistan	<i>Preparation of graphene nanoplates supported silver nanoparticles and its application for the photodegradation of organic dyes</i>	Co. PI	203430/NPPU/R&D/HEC	3.5
5	PSf, Pakistan	<i>Efficiency of iron supported on porous material (prepared from peanut shells) for liquid phase aerobic oxidation of alcohol</i>	PI	PSF/Res/F-UM/Chem(434)	1.2
6	University of Malakand	<i>Synthesis and characterization of iron oxide nanoparticles supported on zirconia and its application in the gas phase oxidation of cyclohexanol to cyclohexanone</i>	PI	UOM/Fin/14/897	0.1
7	HEC, Pakistan	<i>Synthesis of Metal and Metal Oxide Nanocrystals and Study of Formation Mechanism</i>	PI	No.18-5/HEC/R&R/PPCR/2017	0.3
8	University of Malakand	<i>Architecture of Ceria supported Palladium: DFT Studies and Catalytic Screening</i>	PI	UOM/ORIC/296	0.1

Supervision				
No	Name	Program	Thesis Title	Year
1	Mehnaz Bibi	PhD	<i>Investigation of the Synergistic Effect of Doped Metals on the Catalytic, Electronic and Magnetic Properties of Ferrites</i>	2023
2	Umar Wahab	PhD	<i>Synthesis of Iron-Nickel Based Catalysts for Microwave Assisted Chemo-selective Hydrogenation of Aldehydes and Ketones</i>	2024
3	R. Aman	PhD	<i>Probing the surface activity of activated carbon; oxidation of cycloalkanes in the protocol of green chemistry</i>	2018
4	Z. Iqbal	PhD	<i>Cost Effective Catalysts for the Synthesis of Benzimidazole Derivatives from Cinnamaldehyde: DFT Descriptors for Molecular Reactivity of Substituted Cinnamaldehydes</i>	2020
5	Z. Iqbal	PhD	<i>Microwave Assisted Catalytic Hydrogenation of Aldehydes</i>	2022
6	S. Khan	PhD	<i>Synthesis of Ternary Nanocomposites as Catalysts for Photo-degradation of Dyes</i>	2022
7	H. Khaliq	MPhil	<i>Oxidation of cyclohexanol, with oxygen catalyzed by reduced and unreduced iron supported on zirconia, in the liquid phase; solvent free conditions</i>	2012
8	G. Zamin	MPhil	<i>Synthesis and characterization of iron oxide nanoparticles supported on zirconia and its application in the gas-phase oxidation of alcohol</i>	2014
9	S. Hussain	MPhil	<i>Efficiency of iron supported on porous materials (prepared from peanut shell) for oxidation of alcohol</i>	2014
10	R. Iqbal	MPhil	<i>Surface modification and characterization of multi walled carbon nanotubes with tin and platinum as a green and sustainable catalyst</i>	2014

11	H. Kamal	MPhil	<i>Investigating the Catalytic activity and selectivity of phosphated zirconia for Aza-Michael reactions</i>	2014
12	K. Badshah	MPhil	<i>Kinetic study of selective gas-phase oxidation of isopropanol to acetone using monoclinic ZrO<sub>2</sub> as a catalyst</i>	2014
13	M. S. Ahmad	MPhil	<i>Catalytic activity of the platinum doped zirconia in the selective oxidation of cyclohexyl alcohol</i>	2017
14	S. Hussain	MPhil	<i>Comparative study of noble metals supported on titania for oxidation of styryl carbinol</i>	2017
15	S. Jabeen	MPhil	<i>Palladium supported zirconia based catalytic degradation of organic dyes from waste water</i>	2017
16	J. Gul	MPhil	<i>Bimetallic graphene oxide as an efficient catalyst for one pot synthesis of N-benzalideneaniline</i>	2017
17	S. H. Shah	MPhil	<i>The effect of substituted aniline on imination reactions catalyzed by Mn-Co/rGO</i>	2018
18	M. H. Shah	MPhil	<i>Effect of calcium doping on the efficiency of manganese ferrite for the oxidation of cycloalkanes</i>	2019
	S. Qazi	MPhil	<i>Investigation of catalytic activity and selectivity of mica supported palladium nanocubes for Heck reaction</i>	2020
19	T. Mahmood	MPhil	<i>Probing the redox properties of octahedral palladium nanocrystals supported on mica</i>	2020
20	R. Ullah	MPhil	<i>Designing of Reactor for Catalytic Conversion of CO<sub>2</sub> to Methanol Using Magnetic Nanoparticles</i>	2020
21	Israr	MPhil	<i>Quantum Chemical Calculation of Atomic Layer Deposition of Zinc Oxide on Silicon/Silicon Dioxide Surface</i>	2021
22	Bushra	MPhil	<i>Synthesis, Characterization of Nitrogen-Doped Carbon Dots for Determination of Blood Cholesterol</i>	2021
23	I. Ullah	MPhil	<i>Synthesis and Characterization of Ceria Supported Palladium, Platinum and Nickel Catalysts For Octanol Oxidation</i>	2021
24	S. Bibi	MPhil	<i>Synthesis and Characterization of Palladium Assisted Carbon Dots as an efficient catalyst for Heck Reaction</i>	2023
25	N. Shakir	MPhil	<i>Synthesis of platinum loaded carbon dots as a catalyst for heck reaction</i>	2023
26	S. Khan	MPhil	<i>Synthesis and characterization of metal-organic frame work for capturing carbon dioxide</i>	2023
27	S. Hussain	MPhil	<i>An efficient degradation of acid yellow 76 over Platinum and Tin co-doped zirconia catalyst</i>	2023
28	F. Latif	MPhil	<i>Aerobic Oxidation of Cyclohexane Catalyzed by Palladium Supported on Ceria Nanoparticles</i>	2023
29	Nasrullah	MPhil	<i>Synthesis, Characterization and Photocatalytic Properties of Polyethylene Glycol Coated Spinel Ferrite</i>	2024
30	Sinan Jamal	MPhil	<i>Synthesis and Characterization of Titania-Decorated Reduced Graphene Oxide for the Photocatalytic Oxidation of Toluene</i>	2024
31	Syed Ibrahim	MPhil	<i>Synthesis and characterization of zeolitic imidazolate frameworks incorporated functionalized titanium dioxide for adsorption and utilization of carbon dioxide</i>	2024
32	Izaz Ullah	MPhil	<i>Synthesis and Characterization of Titanium Modified 3A Molecular Sieves for the Photocatalytic Degradation of Humus</i>	2024
33	Makkah Zaman	MPhil	<i>Synthesis and Characterization of Zirconium Phosphate Based HKUST-1 Supported on Titanium Doped Reduced Graphene Oxide for Carbon Dioxide Capturing and Utilization</i>	2024
34	Sundas Ahmad	MPhil	<i>Effects of Manganese doping on the catalytic activity of <math>\gamma</math>-alumina: Catalytic oxidation of toluene to benzaldehyde</i>	2025

<b>List of Conferences/Workshops/Seminars (Presentation/Attended)</b>			
S.No	Conference	Venue	Date
1	First Workshop on the contribution of NCE in Physical Chemistry in National development	NCE in Physical Chemistry, University of Peshawar	17 <sup>th</sup> January, 2011
2	UOM Sponsor Seminar on, "Zirconia Catalyzed Liquid Phase Organic Oxidation Reactions in Solvent Free Conditions"	Department of Chemistry, University of Malakand	02/03/2011
3	Two Days Training Workshop on "Quality Criteria"	University of Malakand	27-28 July, 2011
4	National Symposium on Kinetics and Catalysis	University of Peshawar Summer Campus, Baragali, Abbottabad	26-28 September, 2011
5	HEC Workshop on Invotation in Chemical Education (ICE-12)	University of Malakand	4-7 June, 2012
6	International Conference on Physical and Environmental Chemistry	NCE in Physical Chemistry, University of Peshawar	9-11 September, 2013
7	Indigenous On-Campus Training Workshop of Administrative Staff on "Semester Bye-Laws"	University of Malakand	19-20 March, 2015
8	26 <sup>th</sup> National and 14 <sup>th</sup> international Chemistry Conference	The Islamia University of Bahawalpur, Pakistan.	05-08 October, 2015

9	5 <sup>th</sup> Invention to Innovation Summit	University of Haripur	3-4 November, 2015
10	Second UAE Conference on Pure and Applied Chemistry	American University of Sharjah, UAE	1-3 March, 2016
11	5 Days Workshop on “Training & Research”	University of Malakand	23-27 May, 2016
12	27 <sup>th</sup> National and 15 <sup>th</sup> Internal Chemistry Conference on “Innovation and sustainability”	University of Malakand	22-25 August, 2016
13	3rd International Turkic World Conference on Chemical Sciences & Technologies	Azerbaijan State Oil and Industrial University, Azerbaijan	10-13 September, 2017
14	1 <sup>st</sup> International Conference on Modeling and Simulation of Emerging Materials (MSEM 2018)	Department of Physics, Abbottabad University of Science and Technology	02-04 July, 2018
15	Invited Lecture “Low-Cost Catalyst for Green Oxidation of Alcohol”	Department of Chemistry, Kyungpook National University, South Korea	27 <sup>th</sup> March 2019
16	AASSA-PAS Regional Workshop on “Complementary Medicine as an Answer to Challenges Face in Achieving Sustainable Goals in Health”	Pakistan Academy of Sciences, Islamabad	19-21 August 2019
17	30 <sup>th</sup> National & 18 <sup>th</sup> International Chemistry Conference on Recent Trends in Chemistry	Department of Chemistry, University of Management & Technology, Lahore, Pakistan	27-29 November, 2019
18	E-meeting on Catalysis and Chemical Engineering	Organized by United Scientific Group, USA	11 May, 2020
19	5 <sup>th</sup> International Conference on Catalysis and Chemical Engineering (Virtual)	Organized by United Scientific Group, USA	22-26 February, 2021
20	Smarter Experimentation for Scientists and Engineers: Online Training Programme on design of Experiments (Virtual)	Royal Society of Chemistry	15-19 March 2021
21	“Training of Faculty Member on Campus Management System (CMS)”	Digital Lab, University of Malakand	25 <sup>th</sup> March 2021
22	RSC-IISER Desktop Seminar with ChemComm (Virtual)	Royal Society of Chemistry	6 <sup>th</sup> August, 2021
23	Discover the possibilities with the new multi-sample Discovery X3 Differential Scanning Calorimeter	Chemistry World Webinar	2 <sup>nd</sup> September, 2021
24	RSC-IISER Desktop Seminar with CrystEngComm (Virtual)	Royal Society of Chemistry	23 <sup>rd</sup> September, 2021
25	RSC-IIT Desktop Seminar with JMC-A (Virtual)	Royal Society of Chemistry	27 <sup>th</sup> October 2021
26	Catalysis Science & Technology 10 <sup>th</sup> Anniversary Symposium (Virtual)	Royal Society of Chemistry	16-17 November, 2021
27	ChemSci2021: Leaders in the Field Symposium (Virtual)	Royal Society of Chemistry	15 <sup>th</sup> December 2021
28	6 <sup>th</sup> International Conference on Catalysis and Chemical Engineering (Hybrid Mode)	Organized by United Scientific Group, USA	22-26 February, 2022
29	7 <sup>th</sup> International Conference on Catalysis and Chemical Engineering (Hybrid Mode)	Organized by United Scientific Group, USA	20-24 February, 2023

<b>List of Conferences/Workshops/Seminars Organized</b>			
<b>S.No</b>	<b>Conference/Workshop/Seminar</b>	<b>Venue</b>	<b>Date</b>
1	UOM Sponsor Seminar on, “Electrochemical Sensors for Detection of Proteins” Speaker, Professor Dr. Muhammad Rasul Jan, Vice Chancellor University of Malakand	University of Malakand	08/12/2010
2	UOM Sponsor Seminar on, “New Picolyamine Template Organo-Catalyst for Enantioselective Aldol Reactions” Speaker, Dr. Muhammad Naveed Umar, Department of Chemistry, University of Malakand	University of Malakand	22/12/2010
3	UOM Sponsor Seminar on, “Combination of 1,2- Hydroboration and 1,1 organoboration, an Efficient route for the synthesis of Spirosilanes” Speaker, Dr. Ezzat Khan, Department of Chemistry, University of Malakand	University of Malakand	05/01/2011
4	UOM Sponsor Seminar on, “Complexation, Characterization and Biological Activities of NPS donor ligands with Palladium” Speaker, Dr. Hizbullah, Department of Chemistry, University of Malakand,	University of Malakand	19/01/2011
5	UOM Sponsor Seminar on, “Conversion of Low-Cost Precursors into Useful Products and its Use for the Wastewater Treatment” Speaker, Dr. Sultan Alam, Department of Chemistry, University of Malakand	University of Malakand	02/02/2011
6	UOM Sponsor Seminar on, “The Use of End Note in Scientific Writing” Speaker, Dr. Mumtaz Ali, Department of Chemistry, University of Malakand	University of Malakand	02/03/2011
7	UOM Sponsor Seminar on, “Zirconia Catalyzed Liquid Phase Organic Oxidation Reactions in Solvent Free Conditions” Speaker, Dr. Muhammad	University of Malakand	30/03/2011

	Sadiq, Department of Chemistry, University of Malakand		
8	UOM Sponsor Seminar on, "Carbon Nanotubes/ Polymer Nanocomposites and their Electrospun Membrane" Speaker, Dr. Khalid Saeed, Department of Chemistry, University of Malakand	University of Malakand	13/04/2011
9	UOM Sponsor Seminar on, "Random Thoughts on Education" Speaker, Prof. Fida Mohammad, Ghulam Ishaq Khan Institute of Engineering Sciences & Technology, Swabi,	University of Malakand	April 28, 2011
10	HEC Sponsor Seminar on, "Studies on the Molecular Treatment of Epilepsy, Diabetes and Multidrug Resistance (MDR) Infection" Speaker, Prof. Muhammad Iqbal Choudhary, HEJ Research Institute of Chemistry, University of Karachi	University of Malakand	06/07/ 2011
11	UOM Sponsor Seminar on, "Design, Synthesis and Characterization of Supramolecular Nano pores" Speaker, Dr. M. Raza Shah, HEJ Research Institute of Chemistry, University of Karachi,	University of Malakand	June 17, 2011
12	HEC Workshop on, "Innovation in Chemical Education"	University of Malakand	Jun 4-7, 2012
13	Eradication of Polio Using ICT organized by ORIC, UOM	University of Malakand	07/09/2015
14	27 <sup>th</sup> National and 15 <sup>th</sup> International Chemistry conference	University of Malakand	2016
15	Session (Technologies for active pharmaceutical intermediates "API"), 2 <sup>nd</sup> Invention to Innovation Summit KP	UET Peshawar	2016
16	Session (Technologies for active pharmaceutical intermediates "API"), 3 <sup>rd</sup> Invention to Innovation Summit, KP	UET Peshawar	2017
17	Session (Technologies for active pharmaceutical intermediates "API"), 4 <sup>th</sup> Invention to Innovation Summit, KP	CECOS Peshawar	2018
18	Seminar Series " Chemistry can make the UN SDGs a reality"	University of Malakand	2020
19	UOM Sponsor Seminar on, "Synthesis of Constanolactones " Speaker, Prof. Iqbal Hussain, Department of Chemistry, Islamia College University Peshawar	University of Malakand	18/03/2021
20	UOM Sponsor Seminar on, "Polymer Based Composites" Speaker, Dr. Khalid Saeed, Department of Chemistry, Bacha Khan University Charsadda	University of Malakand	10/06/2021
21	UOM Sponsor Seminar on, "Green Chemistry" Speaker, Prof. Muhammad Ilyas, Department of Chemistry, Qurtaba University Peshawar	University of Malakand	16/06/2021
22	UOM Sponsor Seminar on, "Role of Solvents in The Kinetics of Redox Reactions" Speaker, Dr. Rozina Khattak, Department of Chemistry, SBBW University Peshawar	University of Malakand	02/07/2021
23	UOM Sponsor Seminar on, "Polymer Characterization and Role of Nano Materials and Nano Composite Formation" Speaker, Dr. Noor Rahman, Department of Chemistry, SBBU Sheringal	University of Malakand	08/07/2021
24	UOM Sponsor Seminar on, "Chemistry and the Environment" Speaker, Dr. M. Abid Zia, Department of Chemistry, Education University Lahore, Attock Campus	University of Malakand	13/09/2021
25	Seminar on, "Laboratory and Environmental Safety" Speaker, Prof. Dr. M. Raza Shah, HEJ Research Institute of Chemistry, University of Karachi	University of Malakand	22/06/2022
26	Seminar on, "Global Warming and Climatic Change" Speaker, Prof. Dr. Ch. Jamil Anwar, School of Science, UMT, Lahore,	University of Malakand	06/09/2022
27	Seminar on, "Global Climatic Change" Speaker, Prof. Dr. M. Abid Zia, Department of Chemistry, University of Education Lahore, Attock Campus,	University of Malakand	12/09/2022
28	Seminar on, " Polymeric Micellar Systems and Their Applications in Micellar Enhanced Ultra-Filtration (MEUF)" Speaker, Prof. Dr. Abbas Khan, Department of Chemistry, AWKU Mardan	University of Malakand	04/11/2022
29	Seminar on, "Role of OH radical in cleaning of atmospheric pollutant" Speaker, Prof. Dr. Fida Mohammad, DEAN, Faculty of Materials Science and Engineering, GIK Institute of Engineering Sciences and Technology, Topi, Swabi	University of Malakand	29/11/2022
30	Seminar on, Speaker, "Era in advance materials" Speaker, Dr. Mohammad Sohail, Assistant Professor, Institute of Chemical Sciences, University of Swat	University of Malakand	15/12/2022
31	Seminar on, "Fine-tuning the electronic structure of Fe(II), Ru(II) and Ni(II) complexes with 2-aryl imidazoles" Speaker, Dr. Naheed Bibi, Assistant Professor, Department of Chemistry, Shaheed Benazir Bhutto Women University Peshawar	University of Malakand	22/12/2022
32	HEC Sponsor, 1 <sup>st</sup> International Conference and 4 <sup>th</sup> International Workshop on Materials Modelling and Simulation (ICWMMS-2022)	University of Malakand	24-26/10/2022
33	Seminar on, "Science in Everyday Life" Speaker, Prof. Dr. Ch. Jamil Anwar, School of Science, Department of Chemistry, UMT Lahore	University of Malakand	16/05/ 2024
34	Seminar on, "Nanocomposites and their Applications" Speaker, Prof. Dr. Khalid Saeed, Dean of Science/ Professor, Department of Chemistry, Bacha Khan University, Charsadda	University of Malakand	23/05/ 2024
35	Seminar on, "New Strategies for Drug Design and Discovery As Example of	University of Malakand	03/07 2024

	urease inhibitors; Biochemical Analyses, Molecular Docking and STD-NMR Spectroscopy” Speaker, Prof. Dr. Ajmal Khan, Natural and Medical Sciences Research Center, University of Nizwa, Sultanate of Oman		
36	Seminar on, “Applications of 2D Techniques for Structure Confirmation of Organic Compounds” Prof. Dr. Khair Zaman, Department of Chemistry, Abdul Wali Khan University, Mardan	University of Malakand	12/09/2024
37	Seminar on, Beyond Shut Up & Calculate Pedagogical Approach to Quantum Chemistry using Classical Patient Model, Department of Physics, University of Malakand	University of Malakand	26/09/2024
38	Seminar on, “Platinum Drugs Challenges and Mitigation” Prof. Dr. Zia Ur Rehman, Department of Chemistry, Quaid-i-Azam University, Islamabad	University of Malakand	04/10/2024
39	22 <sup>nd</sup> International & 34 <sup>th</sup> National Chemistry Conference (chemcon-2024)	HEC/ University of Malakand	Oct 30-Nov 01, 2024
40	Seminar on, “ The Role of Microwaves in the Material Science and Material Chemistry ” Prof. Dr. Zahid Hussain , Department of Chemistry, Abdul Wali Khan University, Mardan	University of Malakand	21/11/2024
41	Seminar on, “Development of Z-Scheme Heterojunction Photocatalysts Based on Graphitic Carbon Nitride Ternary Nanocomposites for Environmental and Energy Applications ” Prof. Dr. Abbas Khan, Department of Chemistry, Abdul Wali Khan University, Mardan	University of Malakand	12/12/2024
42	Seminar on, “Cost Effective Research with Electrochemistry” Prof. Dr. Safeer Ahmad, Department of Chemistry, Quaid-i-Azam University, Islamabad	University of Malakand	30/12/2024