Curriculum Vitae

Professor Dr. Asif Mahmood

Chemical Engineering Department, College of Engineering, King Saud University, P.O. Box 800, Riyadh 11421, Kingdom of Saudi Arabia.
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Educational Background

➢ Doctorate (Mar. 2007-Aug. 2010)

Specialization	Quantum Energy Chemical Engineering
Institute	Korea Atomic Energy Research Institute (KAERI), South Korea.
University	University of Science and Technology (UST), Daejeon, South Korea

Thesis Topic in PhD

Microstructural control and superconducting properties of melt-textured and liquid infiltration growth processed high temperature bulk superconductors.

➢ M. Sc (Sep. 2003-Feb. 2006)

Specialization	Chemical Engineering
University	Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea

Thesis Topic in M. Sc.

Activity promotion of Au/TiO_2 catalyst by defect generation for oxidation and preferential oxidation of CO.

➢ B. Sc (Sep. 1998-Feb. 2003)

Specialization	Chemical Engineering, Specialization in Petroleum & Gas Technology.
University	University of Punjab, Lahore, Pakistan.

Thesis Topic in B. Sc

Recovery of 100-tons/day of benzene from B.T.X. by distillation method

- **Higher Secondary School Certificate (HSSC)**

Specialization	Pre- Engineering,
College	Govt. College Bhakkar, Punjab, Pakistan

- **Secondary School Certificate (SSC)**

Specialization	Pre- Science
School	Govt. Model High School, Bhakkar, Punjab, Pakistan

Academic/ Research Experience

Feb. 2022 - To date
Institute: Chemical Engineering Department, King Saud University, Riyadh, Saudi Arabia
Position: Professor
Role: Teaching and Research

May. 2016-Feb. 2022
Institute: Chemical Engineering Department, King Saud University, Riyadh, Saudi Arabia
Position: Associate Professor
Role: Teaching and Research

Sep. 2011-Apr. 2016
Institute: Chemical Engineering Department, King Saud University, Riyadh, Saudi Arabia
Position: Assistant Professor
Role: Teaching and Research

Jan. 2011- Aug. 2011
Institute: College of Engineering, Hanyang University, Seoul, Republic of Korea
Position: Research Assistant Professor
Role: Postdoctoral Research Fellow

Sep. 2010-Dec. 2010
Institute: Korea Polytechnic University, Ansan, Republic of Korea
Position: Postdoctoral Research Fellow
Role: Research Fellow (Researcher)

Mar.2007-Jul. 2010
Institute: Korea Atomic Energy Research Institute (KAERI), Daejeon, Republic of Korea.
Position: Project Researcher (PhD Student)
Role: PhD Scholar

Mar. 2006-Feb. 2007
Institute: Korea Atomic Energy Research Institute (KAERI), Daejeon, Republic of Korea.
Position: Research Fellow (Researcher)
Role: Research

Academic Role at King Saud University, Riyadh, Kingdom of Saudi Arabia.

- Teaching Course "**Heterogeneous Reactor Design CHE 426"**
- Teaching Course "**Principles of Materials Engineering CHE 319"**
- Teaching Course "**Selected Topics in Chemical Engineering CHE 425"**
- Teaching Course "**Graduate Course CHE 560"**
- Teaching Course **"Computer Programming (MATLAB) GE 209"**
- Teaching Course "**Chemical Reaction Engineering, CHE 320**"
- Teaching Lab Course "**Energy Transport Operations, CHE 317**"
- Teaching Lab Course **"Principles of Materials Engineering**, **CHE 319**"
- **Graduation Project-1 (CHE 496)**
- **Graduation Project-2 (CHE 497)**
- **Committee member for ABET** (Accreditation Board for Engineering and Technology), Accreditation committee.
- **Committee member for graduate students "Design Project (CHE 496)" committee.**

Supervision of Students

1	M-Phil students graduated as co-supervisor	2 Students
2	PhD students graduated as co-supervisor	1 Student
3	MSc students Currently being co-supervised	2 Student
4	PhD students Currently being co-supervised	3 Students

Research Interest

a- Quantum Energy and Thermoelectric power generation

b- Catalytic chemistry and Nano-structured materials.

c- Catalytic conversion of olefins, epoxides, CO, and CO_2 to value-added chemicals

d- High temperature superconducting materials. (YBCO Bulk and Thin Film)

e- Solidification process, grain refinement & crystal growth.

f- Combinatorial method, Fuel cell, Solar cell

g- Photocatalysts, Heterogeneous catalysts, Reaction engineering.

Research Highlights

- Research Paper selected for **"Highlights of 2010 collection"** from "Superconductor Science and Technology" and awarded as **"High standard of research published in this journal"**.
  Asif Mahmood, B. H. Jun, Y. H. Han, C. J. Kim. "Effective pore control and critical current density in liquid infiltration growth processed YBCO superconductors with Ag addition".

  ***Superconductor Science and Technology, 23,* 2010, 065005.**

Design and Written Ongoing Projects

At King Saud University, Riyadh, Kingdom of Saudi Arabia

Project #1:

Project Title: Development of Ethylene Oxide production process by epoxidation of Ethylene with Peracetic Acid.

Funding Body: Saudi Basic Industries Corp (SABIC)

Duration: Jan. 2012-Dec. 2016

Team: W. Al-Masry, **Asif Mahmood**, Y. S. Alzoghayer, A. M. Ajbar, E. Ali.

Role: Co-Principal-investigator (Experimental Team Leader)

Project #2:

Project Title: P-Xylene liquid-phase catalytic oxidation to Terephthalic Acid using Co-catalysts

Funding Body: Saudi Basic Industries Corp (SABIC)

Duration: Sep. 2017 to Oct. 2018

Team: W. Al-Masry, **Asif Mahmood**, S. Haider, M. R. Siddique, M. Adil, M. Mujeeb.

Role: Co-Principal-investigator (Experimental Team Leader)

Project #3:

Project Title: Development of Bio-polyesters and their Graphene-based nanocomposites from renewable resources. **(Project number DRI-KSU-637).**
Funding Body: Deputyship for Research & Innovation, Ministry of Education, Saudi Arabia
Duration: Feb. 2021 to Feb. 2023

Team: W. Al-Masry, M. R. Siddique**,** S. Haider, **Asif Mahmood,** A. Al-Ghyama, S. F. Adil, M. Mujeeb, Y. S. Alzoghayer. Soo Young Park (International Collaborator).
Role: Co-Principal-investigator

Project #4:

Project Title: Photo-catalysts synthesis and their applications

(Research Group Project No. RGP-VPP-106)

Funding Body: Deanship of Scientific Research (DSR), King Saud University (KSU).

Duration: Sep. 2012 to Sep. 2013

Team: Y. Al-Zeghayer, **Asif Mahmood**, S. M. Ramay

Role: Co-Principal-investigator

Project #5:

Project Title: Rare earth-based perovskites by ab-initio approach.

(Researcher's Supporting Project Number (RSP-2019/43)

Funding Body: King Saud University, Riyadh, Saudi Arabia.

Duration: Jan. 2019 to Jan. 2020

Team: Asif Mahmood, S. M. Ramay.

Role: Principal-investigator

Project #6:

Project Title: Perovskites Materials by DFT approach using Wein2k.

(Researcher's Supporting Project Number (RSP-2019/71)

Funding Body: King Saud University, Riyadh, Saudi Arabia.

Duration: Jan. 2019 to Jan. 2020

Team: S. M. Ramay, **Asif Mahmood**.

Role: Co-Principal-investigator

Project #7:

Project Title: Rare earth-based perovskites by ab-initio approach.

(Researcher's Supporting Project Number (RSP-2021/43)

Funding Body: King Saud University, Riyadh, Saudi Arabia.

Duration: Jun. 2021 to Dec. 2022

Team: Asif Mahmood, S. M. Ramay.

Role: Principal-investigator

Project #8:

Project Title: Perovskites Materials by DFT approach using Wein2k.

(Researcher's Supporting Project Number (RSP-2021/71)

Funding Body: King Saud University, Riyadh, Saudi Arabia.

Duration: Jun. 2021 to Dec. 2022

Team: S. M. Ramay, **Asif Mahmood**.

Role: Co-Principal-investigator

Project #9:

Project Title: Combination of Theoretical and Experimental research work by DFT approach using Wein2k.

(Researcher's Supporting Project Number (RSP2022R511)

Funding Body: King Saud University, Riyadh, Saudi Arabia.

Duration: Dec. 2021 to Jan. 2023

Team: Y. M. Alanazi, **Asif Mahmood**.

Role: Co-Principal-investigator

Project #10:

Project Title: Nanomaterials synthesis and their applications

(Research Group Project No. RGP-VPP-311)

Funding Body: Deanship of Scientific Research (DSR), King Saud University (KSU).

Duration: Sep. 2013 - To date

Team: Asif Mahmood, S. M. Ramay

Role: Principal-investigator

Project #11:

Project Title: Nano- magnetic ceramics synthesis and their applications

(Research Group Project No. RG 1435-004)

Funding Body: Deanship of Scientific Research (DSR), King Saud University (KSU).

Duration: Sep. 2014 - To date

Team: S. M. Ramay, **Asif Mahmood**.

Role: Co-Principal-investigator

Ongoing Research Collaboration

- Université catholique de Louvain (UCL), Division of Materials and Process Engineering, (IMAP), Place Sainte Barbe 2, B-1348 Louvain-la-Neuve, **Belgium, (Prof. Dr. ir. Juray De Wilde). Under Process**

- Multi-scale Materials Modeling Laboratory, Department of Physics, University of Ulsan, Ulsan, 44610, **Republic of Korea (Prof. Dr. Young-Han Shin)** (Doing R&D and Publishing papers together)

- Department of polymer science and Engineering, Kyungpook National University, **South Korea (Prof. Dr. Soo Young Park). Working as International Collaborator.**

- Centre of Excellence in Solid State Physics, University of the Punjab, New Campus, Lahore-54590, **Pakistan (Dr. Shahid Atique).** (Doing R&D and Publishing papers together)

- Department of Physics, University of the Punjab, Lahore, **Pakistan (Dr. H. M. Rafique).** (Doing R&D and Publishing papers together)

- Department of Physics, Syed Babar Ali School of Science and Engineering (SBASSE), Lahore University of Management Sciences (LUMS), Lahore 54792, **Pakistan (Dr. Saleem Murtaza).** (Doing R&D and Publishing papers together)

- Interdisciplinary Research Centre in Biomedical Materials (IRCBM), COMSATS Institute of Information Technology, Lahore, **Pakistan (Dr. M. Iftekhar).** (Doing R&D and Publishing papers together)

- Colleges of Science, Department of Physics and Astronomy, King Saud University, Riyadh, **Kingdom of Saudi Arabia (Dr. Shahid Mahmood Ramay).** (Doing R&D and Publishing papers together)

Instrumental Skills

- X-ray Diffraction (XRD).
- Optical Microscope (OM).
- Scanning Electron Microscopy (SEM).
- Gas Chromatography (GC), GC-MS, HPLC analysis.
- X-ray Photoelectron Spectroscopy (XPS).
- UV-vis Spectrometer.
- BET surface area analysis.
- Transmission Electron Microscopy (TEM).
- Electronic Structure calculations with Wien2K code.
- FTIR Analysis.
- TG/DTG/DTA Analysis.
- Superconductor Quantum Interference Device (SQUID) magnetometer.
- Vibrating Sample Magnetometer (VSM).

Computer Skills

- MATLAB
- Computing software like, Origin, Sigma plot, Root Programming (Basics), Excel, Word, Photoshop, Equation editor.

Distinctions and Research Awards

- Merit scholarship holder in Ph. D. (School of Engineering) sponsored by University of Science and Technology (UST), Korea (2007~ 2010).
- Merit scholarship holder in MSc. (Chemical Engineering) sponsored by KAIST, Korea (Sep. 2003~Feb. 2006).
- Best Oral Presentation Award, Korea Institute of Applied Superconductivity and Cryogenics (KIASC), Korea, *2009.*
- Best Poster Presentation Award, Korean Superconductivity Society (KSS), Korea, July *2008.*
- Best Oral Presentation Award, International Symposium on Advanced Modelling and Processing of Materials (ISAMPM), Korea, *June. 2007.*
- Best Oral Presentation Award, International Symposium on Advanced Modelling and Processing of Materials (ISAMPM), Korea, *Oct. 2006.*

Scientific Societies

- Centre of Ultra Micro-Chemical Process Systems (CUPS) (2004-2005)

- Pakistan Engineering Council (PEC) (Permanent membership)
- Korean Ceramic Society (KCS) (2007-2009)
- Korean Superconductivity Society (KSS) (2007-2009)

Courses Attended During MS and PhD Course (Selected)

For MS:

Advanced fluid mechanics, Hazardous and industrial waste treatment, Advanced Environmental Chemistry, Biological wastewater treatment processes, Physical principles in environmental Engineering, Fluidization engineering, Membrane technology, Nano-chemical technology, Theory of catalysis. Chemical Reaction Engineering, Thermodynamics of Materials

For PhD:

R&D planning and management, Nuclear power plant engineering, Synthesis of oxide ceramics, Heterogeneous Catalysis, Advanced Chemical Reaction Engineering, Chemical Reaction Engineering, Chemical Engineering Thermodynamics, Microstructure analysis and single crystal Growth of superconductors.

Personal Details

Nationality	Pakistan
Gender	Male
Date of Birth	1977-07-22
Marital Status	Married

Family Detail

1- Shazia Asif (Wife)

Qualification	B-Pharm
Nationality	Pakistan

2- Zuha Fatima (Daughter)

Qualification	College Student of Higher Secondary School Certificate (HSSC) Pre-Medical
Nationality	Pakistan
Date of Birth	2004-11-17

3- Aleeza Fatima (Daughter)

Qualification	School Student of Grade 9
Nationality	Pakistan
Date of Birth	2008-09-01

4- Mohammed Hassan Asif (Son)

Qualification	School Student of Kindergarten (KG)
Nationality	Pakistan
Date of Birth	2017-03-24

List of Publications

2022	
1	Comprehensive study of ferromagnetic $MgNd_2X_4$ (X= S, Se) spinels for spintronic and solar cells device applications. M. Robail, N. A. Noor, M. W. Iqbal, H. Ullah, **Asif Mahmood**, M. A. Naeem, Y. H. Shin. ***Ceramics International 48. 2385-2393, 2022***.
2	Tunable Band Gap of Bismuth-Modified Barium Titanate by Cobalt Substitution for Photovoltaic Application. S. M. Ramay, H. Kassim, Asif Mahmood, A. A. Siddig , and N. S. Al Zayed ***J Mater Sci: Mater Electron, 33, 14343-14355, 2022.***
3	Tuning the Optoelectronic and Thermoelectric Characteristics of Narrow Bandgap Rb_2AlInX_6(X = Cl, Br, I) double perovskites: A DFT Study. S. Iqbal, G. M. Mustafa, M. Asgharb, N. A. Noor, M. W. Iqbal, **Asif Mahmood,** Y. H. Shin. ***Material Science and semiconductor processing, 143, 106551, 2022.***
4	Probing direct bandgap of double perovskites Rb2LiTlX6 (X = Cl, Br) and optoelectronic characteristics for Solar cell applications: DFT calculations M. Manzoor, M. W. Iqbal, M. Imran, N.A. Noor, **Asif Mahmood**, Y. M. Alanazi, S. Aftab. ***Journal of Materials Research and Technology, 18, 4775-4785, 2022***
2021	
5	First principle and experimental investigations of monodispersed Au plasmonic nanoparticles on TiO2. H. Ilyas, T. Zeeshan, N. A. Sattar, S. M. Ramay, **Asif Mahmood**, H. G. Abbas. ***Chemical Physics Letters 783, 139080, 2021.***
6	UV-vis light endeavoring decomposition of organic pollutant using Si0.9Re0.1O2 novel developed photo-catalyst. Asif Mahmooda, S. M. Ramay, W. Al-Masry ***Desalination and Water Treatment, 211, 147-150, 2021.***
7	Zinc based chalcogenides ZnMn2X4 (X ¼ S, Se, Te) as promising spintronic and sustainable energy materials: Ab-initio DFT investigations. N.A. Noor, M. Rashid, G. M. Mustafa, Asif Mahmood, W. Al-Masry, S. M. Ramay. ***Journal of Alloys and Compounds, 856, 157198, 2021.***
8	Spin-dependent rare-earth-based MgPr2X4 (X = S, Se) spinels investigations for spintronic and sustainable energy systems applications. Asif Mahmood, M. Rashid, K. Safder, M. W. Iqbal, N. A. Noor, S. M. Ramay, W. Al-Masry, N. Y.A. Al-Garadi. ***Results in Physics, 20, 103709, 2021.***
9	Predicting ferromagnetism and thermoelectric characteristics in bulk spinels $ZnCr_2X_4$ (X= S, Se) using density functional theory. **Asif Mahmood**, S. M. Ramay, W. Al-Masry, A. A. Al-Zahrani ***Physica Scripta., 96, 125724, 2021.***
10	Ab-initio calculations of bandgap tuning of $In_{1-x}Ga_xY$(Y=N, P) alloys for optoelectronic applications.

	R. Muhammad, M. Jamil, Q. Mahmood, S. M. Ramay, **Asif Mahmood**, H. M. Ghaithan. ***Chinese Physics B, 30, 116301-116301, 2021.***
11	Electronic and optical response of HfO2: DFT calculations with Ti and Zr incorporation I. Khan, M. Yousaf, S. M. Ramay, **Asif Mahmood**, H. Ullah, M. Saleem. ***Modern Physics Letters B, 35, 2150452, 2021.***
12	Ab-initio and experimental investigations on Au incorporated MoS_2 for electronic and optical response. P. Akhtar, M. Khan, Z. Kanwal, S. M. Ramay, **Asif Mahmood**, M. Saleem. ***Journal of Alloys and Compounds, 877, 160244, 2021.***
13	Ab-initio and experimental investigations on Pt: MoS_2 for electronic and optical applications. P. Akhtar, M. Khan, S. M. Ramay, **Asif Mahmood**, M. Saleem, Z. Kanwal. ***Chemical Physics Letters, 780, 138938, 2021.***
14	Evaluation of the Thermal and Morphological Properties of γ-Irradiated Chitosan-Glycerol-Based Polymeric Films. W. Al-Masry, S. Haider, **Asif Mahmood**, M. Khan, S. F. Adil, M.R. Siddiqui. ***Processes, 9, 1783, 2021.***
15	Analysis of ternary $AlGaX_2$ (X= As, Sb) compounds for opto-electronic and renewable energy devices using density functional theory. M. W. Iqbal, M. Asghar, N. A. Noor, H. Ullah, T. Zahid, S. Aftab, **Asif Mahmood.** ***Physica Scripta, 96, 125706, 2021.***
16	Exploration of New Double Peroviskites Cs_2YInX_6 (X= Cl, Br, I) for Opto-Electronic and Sustainable Energy Applications. **Asif Mahmood**, N. A. Noor, M. W. Iqbal, A. A Al-Zahrani, Y. H. Shin, T. Zahid. ***ECS Journal of Solid State Science and Technology, 10, 084007, 2021.***
17	Designing of highly active g-C_3N_4/Co@ ZnO ternary nanocomposites for the disinfection of pathogens and degradation of the organic pollutants from wastewater under visible light. M. A. Qamar, M. Javed, S. Shahid, S. Iqbal, S. A. Abubshait, H. A. Abubshait, S. M. Ramay, **Asif Mahmood**, H. M. Ghaithan. ***Journal of Environmental Chemical Engineering, 9, 105534, 2021.***
18	Pressure induced electronic, optical and thermoelectric properties of cubic $SrZrO_3$: DFT investigation. M. Yaseen, H. Shafiq, J. Iqbal, F. Batool, A. Murtaza, M. Iqbal, H. Althib, S. M. Ramay, **Asif Mahmood.** ***Physica B: Condensed Matter, 612, 412626, 2021.***
19	Analysis of direct band gap A_2ScInI_6 (A= Rb, Cs) double perovskite halides using DFT approach for renewable energy devices. N. A. Noor, M. W. Iqbal, T. Zelai, **Asif Mahmood**, H. M. Shaikh, S. M. Ramay, W. Al-Masry. ***Journal of Materials Research and Technology, 13, 2491-2500, 2021.***
20	Pressure induced mechanical, opto-electronics, and transport properties of $ZnHfO_3$ oxide for solar cell and energy harvesting devices. **Asif Mahmood**, S. M. Ramay, W. Al-Masry, A. A. Al-Zahrani, H. Shaikh. ***Mater. Res. Express, 8, 065504, 2021.***
21	Effect of La/Cr co-doping on dielectric dispersion of phase pure $BiFeO_3$ nanoparticles for high frequency applications. M. Amin, H. M. Rafique, G. M. Mustafa, **Asif Mahmood**, S. M. Ramay, S. Atiq, S. M. Ali. ***Journal of Materials Research and Technology, 13, 1534-1545, 2021.***
22	CNTs mediated electrochemical performance and dielectric dispersion of TiO_2-based

	hydrothermally synthesized nanocomposites. M. Akram, R. Khan, F. Afzal, G. M. Mustafa, A. Ahmad, S. M. Ramay, **Asif Mahmood**, S. M. Ali, S. Atiq. ***Ionics, 27, 2107-2118, 2021.***
23	Ab-initio study of opto-electronic and thermoelectric properties of direct bandgap double perovskites Rb_2XGaBr_6 (X=Na, K). A. U. Haq, G. M. Mustafa, M. Amin, S. M. Ramay, **Asif Mahmood.** ***International Journal of Energy Research 45, 9241-9251, 2021.***
24	First principle study of lead-free double perovskites halides $Rb_2Pd(Cl/Br)_6$ for solar cells and renewable energy devices: A quantum DFT. Q. Mahmood, M. Younas, M. G. B. Ashiq, S. M. Ramay, **Asif Mahmood**, H. M. Ghaithan. ***International Journal of Energy Research, 45, 14995-15004, 2021.***
25	Electrochemical performance of $NiFe_2O_4$ nanostructures incorporating activated carbon as an efficient electrode material. T. Uzzaman, S. Zawar, M. T. Ansar, S. M. Ramay, **Asif Mahmood**, S. Atiq ***Ceramics International, 47, 10733-10741, 2021.***
26	Electronic band profiles, magnetic stability, antiferromagnetic spins ordering and thermodynamics properties of novel antiferromagnet $CaCr_2Sb_2$. Z. Zada, H. Ullah, R. Zada, A. A. Khan, **Asif Mahmood**, S. M. Ramay. ***The European Physical Journal Plus, 136, 1-12, 2021.***
27	Study of bandgap tuning of $In_{1-x}Ga_xY$ (Y= N, P) alloys for optoelectronic applications: abinitio calculations. M. Rashid, M. Jamil, Q. Mahmood, S. M. Ramay, **Asif Mahmood**, H. M. Ghaithan. ***Chinese Physics B,*** 30, 116301***,2021.***
28	Growth of Zr–$BiFeO_3$ nanostructures on two step anodized porous alumina for estimation of optical and dielectric response. A. Rehman, M. W. Ashraf, **Asif Mahmood**, A. Rehman, S. M. Ramay, M. Saleem. ***Physica E: Low-dimensional Systems and Nanostructures, 127, 114513, 2021.***
29	Au/TiN nanostructure materials for energy storage applications. S. M. Ali, S. M. Ramay, **Asif Mahmood**, A. Rehman, G. Ali, S. D. Ali, T. Uzzaman. ***Journal of Materials Science: Materials in Electronics, 32, 5810-5820, 2021.***
30	Theoretical analysis of ferromagnetism and electronic transport aspects of CaM_2S_4 (M = Ti, Cr) spinels for the application of spintronic and energy storage system. **Asif Mahmood**, W. Al-Masry, M. N. Anwar, M. M. Adaam, G. U. Islam, S. M. Ramay, ***Modern Physics Letters B, 35, 2150162, 2021.***
31	Analyzing opto-electronic and transport characteristics of $ZnSc_2Se_4$ and $CdSc_2Se_4$ spinels for opto-electronic and energy storage devices. **Asif Mahmood**, S. M. Ramay, W. Al-Masry, A. A. Al-Zahrani, N. Al-Garadi ***Modern Physics Letters B, 35, 2150184, 2021.***
32	Influence of the spin-orbit coupling effect on the electronic and thermoelectric properties of Cs_2MI_6 (M= Zr, Hf) variant perovskites. R. Ullah, M. A. Ali, A. Khan, G. Murtaza, **Asif Mahmood**, S. M. Ramay. ***Materials Research Bulletin, 134, 111112, 2021.***
33	An investigation of structural, elastic, mechanical, electronic, magnetic and thermoelectric properties of ferromagnetic half metallic $EuCrO_3$. R. Ullah, M. A. Ali, G. Murtaza, **Asif Mahmood**, S. M. Ramay. ***Materials Science in Semiconductor Processing, 122, 105487, 2021.***
34	Structural and optical properties of Ti and Cu co-doped ZnO thin films for photovoltaic applications of dye sensitized solar cells. B. Mehmood, M. I. Khan, M. Iqbal, **Asif Mahmood**, W. Al-Masry.

	International Journal of Energy Research, 45, 2445-2459, 2021.
35	Study of optoelectronic and transport properties of $MgLu_2Z_4$ (Z= S, Se) spinels for optoelectronic and energy harvesting applications. G. M. Mustafa, N. A. Noor, M. W. Iqbal, M. Sajjad, M. A. Naeem, Q. Mahmood, H. M. Shaikh, **Asif Mahmood**, W. Al-Masry. ***Materials Science in Semiconductor Processing, 121, 105452, 2021.***
36	Process Parameter Optimization of a Polymer Derived Ceramic Coatings for Producing Ultra-High Gas Barrier. I. A. Channa, A. A. Shah, M. Rizwan, M. A. Makhdoom, A. D. Chandio, M. A. Shar, **Asif Mahmood**. ***Materials, 14, 7000, 2021.***
37	Study of Half Metallic Ferromagnetism and Optical Properties of Mn-Doped CdS M. Yaseen, H. Ambreen, M. Zia, H. M. Javed, I. A. Channa, A. A. Shah, M. Rizwan, M. A. Makhdoom, A. D. Chandio, M. A. Shar, **Asif Mahmood**, A Murtaza. ***Journal of Superconductivity and Novel Magnetism, 34, 135-141, 2021.***
2020	
38	Electronic, optical and magnetic properties of $PrXO_3$(X = V, Cr): first-principle calculations. M. Yaseen, H. Ambreen, J. Iqbal, A. Shahzad, R. Zahid, N. A. Kattan, S. M. Ramay, **Asif Mahmood**. ***Philosophical Magazine, 100, 3125-3140, 2020.***
39	Investigation of the rare earth-based LaYO3 (Y = Cr and Mn) perovskites by ab-initio approach. N.A. Noor, Ujala Anwar, A. Mahmood ***Chemical Physics Letters, 739, 137031, 2020.***
40	Biogenic and eco-benign synthesis of platinum nanoparticles (Pt NPs) using plants aqueous extracts and biological derivatives: environmental, biological and catalytic applications. A. Naseer, A. Ali, S. Ali, Asif Mahmood, H. S. Kusuma, A. Nazir, M. Yaseen, M.I. Khan, A. Ghaffar, M. Abbash, M. Iqbala. ***Journal of Materials Research and Technology, 9, 9093-9107, 2020.***
41	Ab-initio computations of CaV2S4 and CaMn2S4 spinels for spintronics and energy storage system applications. Asif Mahmood, S. M. Ramay, W. Al-Masry, A. A. Al-Zahrani, N. Y.A. Al-Garadi, ***Journal of Materials Research and Technology, 9, 14783-14791, 2020.***
42	First-principle computations of ferromagnetic HgCr2Z4 (Z ¼ S, Se) spinels for spintronic and energy storage system applications. Asif Mahmood, S. M. Ramay, W. Al-Masry, C. W. Dunnill, N. Y.A. Al-Garadi. ***Journal of Materials Research and Technology, 9, 16159-16166, 2020.***
43	Synthesis and characterization of Co and Ga co-doped ZnO thin films as an electrode for dye sensitized solar cells. M. I. Khan, M. Naeem, G. M. Mustafa, S. A. Abubshait, **Asif Mahmood**, W. Al-Masry, … ***Ceramics International, 46, 26590-26597, 2020.***
44	Investigations on electronic and optical properties of Ag: MoS_2 co-sputtered thin films. M. Saleem, S. Atiq, S. M. Ramay, **Asif Mahmood**, A. Rehman, H. S. Khaliq. ***Chemical Physics Letters, 760, 138032, 2020.***
45	Magnetic behavior of Ga doped yttrium iron garnet ferrite thin films deposited by sol-gel technique. M. I. Khan, M. Waqas, M. A. Naeem, M. S. Hasan, M. Iqbal, **Asif Mahmood**, S. M. Ramay, W. Al-Masry, S. A. Abubshait, H. A. Abubshait, Q. Mahmood. ***Ceramics International, 46, 27318-27325, 2020.***

46	Evincing Structural, Electronic, and Magnetic Attributes of $LaFe_{0.5}A_{0.5}O_3$ (A = Co, Cr, and Ti): DFT-GGA Recapitulation. S. Tariq, A. A. Mubarak, **Asif Mahmood**, S. M. Ramay. ***Crystal Research and Technology, 55, 2000135, 2020.***
47	Probing of mechanical behavior, quantum mechanism of spin exchange and magnetism of SnV_2O_4 and SnCr2O4 spinel oxides by DFT. Q. Mahmood, E. Algrafy, T. Ghrib, N. A. Kattan, M. Fatima, S. M. Ramay, **Asif Mahmood.** ***Philosophical Magazine, 100, 2759-2771, 2020.***
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List of Domestic Publications/Conference Proceedings

1	$BiFeO_3$ thin films-structural and dielectric properties. S. Shah, S. Riaz, **Asif Mahmood**, S. M. Ramay, S. Naseem., ***Science International, 27 (4), 2015.***
2	Structural and dielectric properties of la doped $BiFeO_3$ thin films. S. Shah, S. Riaz, S. Atiq, **Asif Mahmood**, S. M. Ramay, S. Naseem., ***Science International 27 (4), 2015.***
3	Magnetically recycle-able Pd-modified $NiFe_2O_4$ nanoparticles. S. Atiq, S. M. Ramay, **Asif Mahmood**, S. Riaz, S. Naseem ***IEEE International Magnetics Conference (INTERMAG), 1-1, 2015.***
4	Fabrication of the diethylenetriamine grafted polyacrylonitrile electrospun nanofibers membrane for the aqueous removal of cationic dyes. S. Haider, F. F. Binagag, A. Haider, **Asif Mahmood**, W. Al Masry, M. Alhoshan, … ***Science of Advanced Materials, 7, 309-318, 2015.***
5	Ruderman-Kittel-Kasuya-Yosida Magnetic Interactions in Chemically Synthesized Zn-Fe-AlO Nano-crystallites., ***Asif Mahmood***, Y. Zeghayer, ***Advanced Materials Research, 748, 65-69, 2013.***
6	Milling Effects of Y2BaCuO5 Precursor Powder with CeO2 Addition on the Critical Current Density of Liquid Infiltration Growth Processed YBaCuO. **Asif Mahmood**, B. H. Jun, C. J. Kim., ***Progress in Superconductivity, 12, 6-11, 2010.***

Participation in International Conference

1	**Title:** *"Strategies to improve catalytic performances of porous nickel based catalysts for methane reforming reactions",* ***Chemical Engineering department, University of Balamand, Lebanon.*** (**Virtual Meeting**)*,* ***Feb. 23, 2021.***
2	**Title:** *"Synthesis of Perovskite Catalysts"* ***Energy & Resource Management Division, CSIR-NEERI, Professor, AcSIR, NAGPUR, India,*** **(Virtual Meeting),** ***Feb. 02, 2021.***
3	**Title: "***(713h) Modified Polyacrylonitrile Nanofibers Membrane and Its Application in the Remediation of Dye Polluted Wastewater,* **AIChE Annual Meeting, 2020, Singapore, (Virtual Meeting).**
4	**Title: "**Enhancement of Catalytic Activity of Au/TiO2 By Thermal and Plasma Treatment." Abstract #402212 (Oral Presentation). **12th International Conference on Gas-Liquid & Gas-Liquid-Solid Reactor Engineering (GLS12), Crowne Plaza, Times Square Manhattan in New York, NY, USA from June 28th to July 1st, 2015.**
5	**Title:***"Ruderman-Kittel-Kasuya-Yosida magnetic interactions in chemically synthesized Zn-Fe-AlO nanocrystallites"* **Material and Manufacturing Technology (ICMMT 2013), Seoul, South Korea, May 11-12, 2013.**
6	**Title:** "*Growth of Y_2O_3 film as a seed layer on the metal substrate for YBCO coated conductors by CSD approach*." **ICAUMS, Korea,** *Poster presentation,* ***5-8th Dec. 2010****.*
7	**Title:**"*$BaCeO_3$ addition effect on the superconducting properties of LIG processed YBCO bulk superconductors*" ***ISS, Japan,*** *Poster presentation,* ***27th Oct. 2008.***
8	**Title:** "*Pre-sintering effects on the critical current density of YBCO bulk prepared by infiltration method*". ***ISS, Japan,*** *Poster presentation,* ***5th Nov. 2007****.*
9	**Title:** "*The effect of sintering temperature on the microstructure and critical current density of YBCO bulk prepared by infiltration method*". ***ISAMPM, Korea,*** *Oral presentation,* ***1st June. 2007.***
10	**Title:** "*Activity promotion of Au/TiO_2 catalyst by defect generation for oxidation and preferential oxidation of CO*". ***ISAMPM, Korea,*** *Oral Presentation,* ***30th Oct. 2006.***
11	**Title:** "*Milling effects of Y_2BaCuO_5 precursor powder with 1 wt.% CeO_2 addition on the critical current density of liquid infiltration growth processed YBCO bulk superconductors*". ***KSS, Korea,*** *Poster presentation,* ***7th Jul. 2010****.*
12	**Title:** "*Liquid infiltration process for the fabrication of YBCO bulk using milled Y211 precursor powder*". ***KIASC, Korea,*** *Oral presentation,* ***25th Sep. 2009****.*
13	**Title: "***Comparative study of LIG process and MTG process for the fabrication of YBCO bulk superconductors*". ***KSS, Korea,*** Poster presentation, ***8th Jul. 2009.***
14	**Title:** "*Sintering effect of Ag-doped Y211 for the improvement of superconducting properties of YBCO bulk superconductors*". ***KSS, Korea,*** Poster presentation, ***9th Jul. 2008****.*
15	**Title:** "*Growth mechanism and morphology of melt-processed $Y_{1.5}BCO$ with $BaCeO_3$ addition"*. ***KSS, Korea,*** *Poster presentation,* ***16th Aug. 2007****.*
16	**Title:** *"Infiltration process and liquid concentration effect on the microstructure of Y211*". ***KSS, Korea,*** *Poster presentation,* ***16th Aug. 2006.***

Summary of SCI Publications and Participation in International Conferences

Publications Year	**Papers Published in SCI Journals**
2022	4
2021	33
2020	43
2019	12
2018	18
2017	21
2016	35
2015	20
2014	4
2013	3
2012-2005	10
Total Publications	**203**
Participation in International Conferences	**16**

List of Book Chapters

Book Chapters:

1- J. H. Liu, M. K. Jeon, **Asif Mahmood** and S. I. Woo* (2006). "*Combinatorial and high throughput discovery and optimization of catalysts and materials*". Edited by Radislav A. Potyrailo and Wilhelm F. Maier, ***Chapter. 14, Page. 259~279, 2006.***

3- Asif Mahmood "Importance of Heterogeneous Catalysis in the family of Catalysis" ------- In progress, ***2022.***

List of Patents

Industrial Patents:

1- Muhammad Imran Yaqub, **Asif Mahmood,** Sayari-Al, Abdullah S, Dosari-Al, Fahad Salem, Waheed A. Al-Masry, Yousef Al-Zeghayer (2021).

"A process to produce non-aqueous peracetic acid for alkenes epoxidation" ***Ref. KS80025US/SABIC Ref.14CHEM0112-US-PSP. (Under Process)***

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