

Dear Sir

I am Master of Engineering in Material Science & Technology, Bachelor of Engineering in Metallurgy and Materials with eight years of highly professional experience in the field of Metallurgy and Materials Engineering, Mechanical Engineering and Nano Technology in three different areas; University, Industry and now as a Researcher.

1. Currently working as Researcher from September 10, 2017 till to date at King Abdullah Institute for Nanotechnology, King Saud University, Riyadh, Saudi Arabia.
2. Researcher (21st November, 2011 to July 13, 2017) at Center of Excellence for Research in Engineering Materials, Advanced Manufacturing Institute and Mechanical Engineering at King Saud University Riyadh, Saudi Arabia.
3. Assistant Manager Vacuum Heat Treatment (2009-2011), Karachi, Tools, Dies & Molds Industry
4. Lab Lecturer (2008-2009) at Department of Metallurgy & Materials, Mehran University of Engineering and Technology Jamshoro, Pakistan.

Being a Researcher now working in state of art characterization lab with various research groups/faculty and have worked for projects of BS, MS, PhD Thesis's, national/international, fully funded industrial projects and research work is published in various journals. I have a very good command on the below list of equipment's.

1. FE-TEM (Field Emission Transmission Electron Microscope) (JEM-2100F) Jeol Japan
2. TEM-EDS (Energy-dispersive X-ray spectroscopy) (JEM-2100F) JEOL Japan
3. TEM (Low, High Resolution, SAED, FFT Image, sample preparation (JEM-2100F) JEOL Japan
4. FE-SEM (Field Emission Scanning Electron Microscope) (JSM-7600F) JEOL Japan
5. FE-SEM-EDS (Energy-dispersive X-ray spectroscopy) Oxford Instrument
6. FE-SEM-EDS (mapping, texture) Oxford Instrument
7. Focused Ion Beam System (JEM-9320FIB) Jeol Japan
8. Powder XRD (X-Ray Diffraction) Stress, texture, high temperature analysis, powder sample diffraction patterns and analysis on D-8 Discover, Bruker Germany
9. SPECTROMAXx Metal Analyzer.
10. Metallography, Heat Treatment, Hardness testing, Microscopy, Mechanical Testing etc.

Beside this I know lot of other research techniques, have track record of attending various conferences, published 15 International research publications with impact factor of about 17 points. In addition, I have taught a course ME-254 (Material Science and Engineering) eight credit hours per week and have supervised undergraduate university projects, interns & taught basic analytical instruments at King Saud University.

I am highly interested to work for this position as I have strong educational background with industry, teaching and research experiences which completely matches with your requirements.

**Best Regards.**

Muhammad Ali

Researcher

King Abdullah Institute for Nanotechnology

King Saud University, Riyadh, Saudi Arabia

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# Muhammad Ali

Researcher

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Education	CGPA	Year	University
Master of Engineering (Material Science & Technology)	3.80/4	2013	Mehran University of Engineering & Technology, Jamshoro, Pakistan
Bachelor of Engineering (Metallurgical & Materials)	3.23/4	2008	Mehran University of Engineering & Technology, Jamshoro, Pakistan

## SUMMARY OF PROFESSIONAL EXPERIENCE: (08 YRS)

1. Currently working as Researcher from September 10, 2017 till to date at King Abdullah Institute for Nanotechnology, King Saud University, Riyadh, Saudi Arabia.
2. Worked as Researcher since November 21, 2011- July 13, 2017 Center of Excellence for Research in Engineering Materials, Advance Manufacturing Institute, Department of Mechanical Engineering, College of Engineering, King Saud University, Saudi Arabia.
3. Worked as Assistant Manager (Production & Vacuum Heat Treatment) at Karachi, Tools, Dies and Molds Industry, from 13 March 2009 to 14 November 2011 on (Seco/Warwick Base Vacuum hardening & nitriding furnaces) Heat Treatment department at Ministry of Industries and Production.
4. Worked as Lab Lecturer at Department of Metallurgy & Materials Engineering, Mehran University of Engineering & Technology from February 16, 2008 to 12 March 2009.

Industrial, University teaching & Research Experience in the field of Metallurgical, Materials Science & Engineering, Material Testing Lab, Research & Development, Industrial Vacuum Heat Treatment, Destructive & Non Destructive Testing, Metallography, Mechanical Testing, TEM, SEM, EDS, XRD, working on various projects & supervised university undergraduate student projects.

## DETAILS OF EXPERIENCE:

### September 10, 2017 till to date

#### Researcher

King Abdullah Institute for Nanotechnology

King Saud University, Riyadh, Saudi Arabia

Currently working as Researcher from September 10, 2017 till to date at King Abdullah Institute for Nanotechnology, King Saud University, Riyadh, Saudi Arabia

Field of interest energy group development of light weight materials, nanotechnology, materials engineering and microscopy (FIB, SEM, TEM and XRD).

**21st, November 2011 to July 13, 2017**

**Researcher**

**Center of Excellence for Research in Engineering Materials, Advanced Manufacturing Institute and department of Mechanical Engineering, College of Engineering, King Saud University, Riyadh, Saudi Arabia**

Researched on various university and industrial projects like (SABIC, ARAMCO, AL-FANAR, NPST, KACST) using state of the art equipment's in characterization lab listed below.

1. FE-TEM - Field Emission Transmission Electron Microscope (JEM-2100F) JEOL (Sample Preparation, Low & High Resolution TEM using FFT, SAED, Indexing) etc.
2. TEM, Energy Dispersive X-ray Spectroscopy (EDS) (Elemental Analysis, Report Analysis)
3. SEM- Field Emission Scanning Electron Microscope (JSM-7600F) JEOL (Low to High Resolution 1mm to 10nm, Indexing used detectors, SEI, BEI, LABE, GB Mode etc.).
4. EDS- Energy Dispersive X-ray Spectroscopy (EDS), (INCA- Exact Oxford system) (Elemental Analysis using KV vs Probe current setting at different WD & report generation).
5. XRD- Powder X-Ray Diffraction (D8 Discover Bruker) (Programs XRD commander, EVA, Laptos, Residual Stress Analysis, Pattern Analysis etc.).
6. Shimadzu XRD 7000 (Sample preparation, Peak Identification, Crystalline size etc.)
7. Spectromax stationary metal analyzer (Analysis of Steel, Aluminum, Magnesium etc.)
8. DSC/TGA, (Model SDT DQ 600) (Simultaneous measurement of weight change (TGA) and true differential heat flow (DSC) on the same sample from ambient to 1,500 °C.
9. Metallography, Heat Treatment, Portable & bench type Hardness Testing (HRC, HV, HB).

**13 March 2009 – 14 November 2011**

**Assistant Manager (Production & Vacuum Heat Treatment)**

(Seco/Warwick Poland Base Vacuum Heat Treatment furnaces)

Karachi Tools Dies & Moulds Industry

Ministries of Industries and Production, Govt of Pakistan

Major Responsibilities:

- Managing & Directing heat treatment processes like annealing, stress relieving, hardening, tempering & nitriding on industrial base & Research development commercial jobs.
- Working with SECO/WARWICK (R & D) Bodycote Poland for the heat treatment processes
- Monitor, review and evaluate process heat treating report & supervise the daily activities
- Practical experience on Metallography Lab, hardness testing on universal hardness tester HRC, HRB, HB & HV, portable hardness tester testing on industrial jobs, Vickers & Micro Vickers hardness testing for nitride layer & their microstructure on metallurgical microscope
- Research & Development projects & industrial jobs of pressure die casting, forging dies, aluminum extrusion dies, sheet metal dies, gears.

**February 2008 – March 2009**

**Lab Lecturer**

Department of Metallurgy & Materials Engineering

Mehran University of Engineering & Technology Jamshoro, Sindh, Pakistan

Conducting classes, assigning projects allocated for the full semester to the various batches

Assigning practical to the students as a projects & in charge heat treatment lab

Subjects taught heat treatment processes, physical metallurgy & material science

## PROFESSIONAL TRAININGS:

King Saud University, department of Mechanical Engineering.	One-week training on Field Emission-Transmission Electron Microscope (FE-TEM 200KV). Mr. Reyaz R. Khan, Country Manager (JEOL) Saudi Arabia
King Saud University, department of Mechanical Engineering.	One Week Training on Field Emission Scanning Electron Microscope (FE-SEM) EDS (Energy-dispersive X-ray spectroscopy). Mr. Yasir Ahmed, Chief Engineer (JEOL) Saudi Arabia
King Saud University, department of Mechanical Engineering.	One-week training on Powder X-Ray Diffraction (XRD) Mr. Kurt, Application Scientist Bruker Germany
Karachi Tools Dies & Mould Industry	Six weeks in house training on Heat Treatment plant (Hardening, Tempering & Nitriding) from SECO/WARWICK Engineer Poland includes testing and process control of heat treatment plant.
Pakistan Machine Tool Factory	Two weeks training on Metallography, heat treatment, material testing, destructive & nondestructive testing from state of the art industry.
Pakistan Steel Mills, Karachi	State of art in producing Plain Carbon Steel & Special Steel in the form of Billets, Blooms & Slabs.
Peoples Steel Mills, Karachi	Primary & Secondary Steel making, Special and alloy Steel
Atlas Engineering Industries, Karachi	Cast Iron Foundry production of automotive parts
Metropolitan Steel Corporation	Re-rolling mill operations
Karachi Tools Dies & Moulds Industry	Development of heat treatment basket made of SS304 used for holding small parts
Karachi Tools Dies & Moulds Industry	Membership Society of Petroleum Engineers & Dies & Mould Association of Pakistan.

## PROJECT / THESIS:

Undergraduate (Bachelor Degree)	"Feasibility of Production of Steel by DRI (Direct Reduced Iron) – Using EAF (Electric Arc Furnace) Route for Pakistan" Project of Al Tuwairqi Steel Mills.
Graduate (Master Degree)	"Effect of Vacuum Heat Treatment Process on Toughness and Wear of H-13 Tool Steel" using Seco/Warwick hardening & Nitriding Furnaces.

## PERSONEL:

Marital Status: Married, 2 children	Present Address: King Abdullah Institute for Nanotechnology, King Saud University, Riyadh, Saudi Arabia.
Passport No: AC3765432 (Expire March 13, 2023)	

## REFERENCE:

1. Professor Tahir Khan, Department of Mechanical Engineering, University of Bradford, UK  
Email: [T.Khan20@Bradford.ac.uk](mailto:T.Khan20@Bradford.ac.uk)
2. Dr. Abdulaziz Al-Hazaa, Vice Dean for Technical Affairs, King Abdullah Institute for Nanotechnology, King Saud University, Riyadh, Saudi Arabia  
Email: [aalhazaa@ksu.edu.sa](mailto:aalhazaa@ksu.edu.sa), Off. : +966-11-4697520

## PUBLICATIONS (ISI JOURNALS)

1. Title: Micro-Channels By Nd:Yag Laser Beam Machining: Fabrication, Microstructures, And Micro-Hardness Profiles,  
Author(S): Ahmed, N (Ahmed, Naveed); Darwish, S (Darwish, Saied); Alahmari, Am (Alahmari, Abdulrehman M.); **Shar, MA (Shar, Muhammad Ali)**  
Source: International Journal Of Advanced Manufacturing Technology Volume: 85 Issue: 9-12 Pages: 1955-1968 Doi: 10.1007/S00170-015-7257-1 Published: Aug 2016
2. Title: Synthesis Of Nano Particles On Polyallyl Diglycol Carbonate Polymer Surface With Alpha Radiation  
Author(S): Farooq, Wa (Farooq, W. A.); Baig, Mr (Baig, M. R.); Ali, Sm (Ali, Syed Mansoor); **Shar, MA (Shar, M. A.)**; Al-Ghamdi, Ss (Al-Ghamdi, S. S.); Al Garawi, Ms (Al Garawi, M. S.); Atif, M (Atif, M.)  
Source: Journal Of Nanoelectronics And Optoelectronics Volume: 11 Issue: 1 Pages: 24-28 Doi: 10.1166/Jno.2016.1877 Published: Feb 2016
3. Title: Effects of Glucose Doping On the MgB<sub>2</sub> Superconductors Using Cheap Crystalline Boron  
Author(S): Parakkandy, Jm (Parakkandy, Jafar Meethale); Shahabuddin, M (Shahabuddin, Mohammed); Shah, Ms (Shah, M. Shahabuddin); Alzayed, Ns (Alzayed, Nasser S.); Qaid, Sas (Qaid, Salem A. S.); Madhar, Na (Madhar, Niyaz Ahmad); Ramay, Sm (Ramay, Shahid M.); **Shar, MA (Shar, Muhammad Ali)**  
Source: Physica C-Superconductivity And Its Applications Volume: 519 Pages: 137-141 Doi: 10.1016/J.Physc.2015.10.003 Published: Dec 15 2015
4. Title: Synthesis, Characterization and Application Of Curcumin Formaldehyde Resin For The Removal Of Cd<sup>2+</sup> From Wastewater: Kinetics, Isotherms And Thermodynamic Studies  
Author(S): Naushad, M (Naushad, Mu.); Ahamad, T (Ahamad, Tansir); Alothman, Za (Alothman, Zeid A.); **Shar, MA (Shar, Muhammad Ali)**; Alhokbany, Ns (Alhokbany, Noura S.); Alshehri, Sm (Alshehri, Saad M.)  
Source: Journal Of Industrial And Engineering Chemistry Volume: 29 Pages: 78-86 Doi: 10.1016/J.Jiec.2015.03.019 Published: Sep 25 2015
5. Title: Structural and Optical Properties Of Pure And Ag Doped ZnO Thin Films Obtained By Sol Gel Spin Coating Technique  
Author(S): Ali, Sm (Ali, Syed Mansoor); Farooq, Wa (Farooq, W. A.); Baig, Mr (Baig, M. R.); **Shar, MA (Shar, M. A.)**; Atif, M (Atif, M.); Alghamdi, Ss (Alghamdi, S. S.); Algarawi, Ms (Algarawi, M. S.); Naeem-Ur-Rehman (Naeem-Ur-Rehman); Aziz, Mh (Aziz, Muhammad Hammad)  
Source: Materials Science-Poland Volume: 33 Issue: 3 Pages: 601-605 Doi: 10.1515/Msp-2015-0091 Published: Sep 2015
6. Title: Growth And Characterization Of Layer By Layer Cds-Zns Qds On Dandelion Like TiO<sub>2</sub> Microspheres For Qdssc Application  
Author(S): Aslam, Mm (Aslam, M. Mohamed); Ali, Sm (Ali, Syed Mansoor); Fatehmulla, A (Fatehmulla, Amanullah); Farooq, Wa (Farooq, W. A.); Atif, M (Atif, M.); Al-Dhafiri, Am (Al-Dhafiri, A. M.); **Shar, MA (Shar, Muhammad Ali)**  
Source: Materials Science In Semiconductor Processing Volume: 36 Pages: 57-64 Doi: 10.1016/J.Mssp.2015.03.030 Published: Aug 2015

7. Title: Synthesis And Characterization Of Highly Organized Crystalline Rutile Nanoparticles By Low-Temperature Dissolution-Reprecipitation Process  
 Author(S): Karim, Mr (Karim, Mohammad Rezaul); Bhuiyan, Mti (Bhuiyan, Mohammad Tauhidul Islam); Dar, Ma (Dar, Mushtaq Ahmad); Seikh, Ah (Seikh, Asiful Hossain); **Shar, MA (Shar, Muhammad Ali)**; Zaman, Mb (Zaman, Mohammed Badruz); Lee, Cj (Lee, Chul Jae); Kim, Hj (Kim, Hee Jin); Lee, Ms (Lee, Mu Sang)  
 Source: Journal Of Materials Research Volume: 30 Issue: 12 Pages: 1887-1893 Doi: 10.1557/Jmr.2015.150 Published: Jun 28 2015
8. Title: Investigation Of Long Term Coupled Effect Of High Temperature And Constant High Humidity On Corrosion Rehabilitated Patches Of Reinforced Concrete Structures  
 Author(S): Wasim, M (Wasim, M.); Hussain, Rr (Hussain, Raja Rizwan); **Baloch, MA (Baloch, M. A.)**  
 Source: International Journal Of Civil Engineering Volume: 13 Issue: 1a Pages: 68-75 Published: Mar 2015
9. Title: Study The Structure And Performance Of Thermal/Plasma Modified Au Nanoparticle-Doped Tio<sub>2</sub> Photocatalyst  
 Author(S): Mahmood, A (Mahmood, Asif); Ramay, Sm (Ramay, Shahid M.); Al-Zaghayer, Ys (Al-Zaghayer, Yousef S.); Atiq, S (Atiq, Shahid); Ahmad, I (Ahmad, Iftikhar); **Shar, MA (Shar, Muhammad Ali)**; Khan, Sd (Khan, Salah Din)  
 Source: Modern Physics Letters B Volume: 28 Issue: 26 Article Number: 1450208 Doi: 10.1142/S021798491450208x Published: Oct 10 2014
10. Title: Influence Of Gamma Irradiation On The Structural And Optical Properties Of Nanostructured Magnesium Doped Sno Thin Films  
 Author(S): Ali, Sm (Ali, Syed Mansoor); Farooq, Wa (Farooq, W. A.); Qindeel, R (Qindeel, Rabia); Baig, Mr (Baig, M. R.); **Shar, MA (Shar, M. A.)**; Al-Ghamdi, Ss (Al-Ghamdi, S. S.); Algarawi, Ms (Algarawi, M. S.); Atif, M (Atif, M.)  
 Source: Journal Of Nanoelectronics And Optoelectronics Volume: 9 Issue: 5 Special Issue: Si Pages: 644-647 Doi:10.1166/Jno.2014.1648 Published: Oct 2014
11. Title: Structural, Morphological, And Magnetic Characterization Of Sol-Gel Synthesized Mncuzn Ferrites  
 Author(S): Ramay, Sm (Ramay, Shahid Mahmood); Rafique, Hm (Rafique, Hafiz Muhammad); Aslam, S (Aslam, Sana); Siddiqi, Sa (Siddiqi, Saadat Anwar); Atiq, S (Atiq, Shahid); Saleem, M (Saleem, Murtaza); Naseem, S (Naseem, Shahzad); **Shar, MA (Shar, Muhammad Ali)**  
 Source: Ieee Transactions On Magnetics Volume: 50 Issue: 8 Article Number: 2200604 Doi: 10.1109/Tmag.2014.2317111 Part: 1 Published: Aug 2014
12. Title: Repair Vulnerability Of Corrosion Patch Repairs At The Steel Intersection Areas Of Reinforced Concrete Slabs Influenced By Harsh Weather  
 Author(S): Wasim, M (Wasim, Muhammad); Hussain, Rr (Hussain, Raja Rizwan); **Baloch, MA (Baloch, Muhammad Ali)**  
 Source: Industrial & Engineering Chemistry Research Volume: 53 Issue: 7 Pages: 2656-2660 Doi: 10.1021/Ie402901y Published: Feb 19 2014
13. Title: Phase Pure Synthesis And Morphology Dependent Magnetization In Mn Doped ZnO Nanostructures

Author(S): Saleem, M (Saleem, Murtaza); Atiq, S (Atiq, Shahid); Ramay, Sm (Ramay, Shahid M.); Mahmood, A (Mahmood, Asif); Siddiqi, Sa (Siddiqi, Saadat A.); **Shar, MA (Shar, Muhammad Ali)**

Source: Advances In Materials Science And Engineering Article Number: 670286 Doi: 10.1155/2014/670286 Published: 2014

#### **Non-ISI**

14. Alhazaa, A.; Khalil, K. A.; Shar, M. A., Transient Liquid Phase Bonding Of Magnesium Alloys Az31 Using Nickel Coatings And High Frequency Induction Heat Sintering. Journal Of King Saud University-Science 2015, Mahmood, A.; Ramay, S. M.; Al-Zaghayer, Y. S.; Atiq, S.; Ahmad, I.; **Shar, M. A.**; Khan, S. D., Study The Structure And Performance Of Thermal/Plasma Modified Au Nanoparticle-Doped Tio 2 Photocatalyst. Modern Physics Letters B 2014, 28 (26), 1450208.
15. Mahmood, A.; Ramay, S. M.; Al-Zeghayer, Y.; Haider, S.; **Shar, M. A.**; Khalid, Y. In Thermal Treatment Effect On Catalytic Activity Of Au/Tio2 For Co Oxidation, Applied Mechanics And Materials, Trans Tech Publ: 2014; Pp 254-258.

#### **Conference:**

16. Iftikhar Ahmad, Mohammad Islam, **Muhammad Ali**, Abdulhakim Almajid, Graphene Nanosheets (Gnss)-Alumina Nanocomposites Fabricated By High-Frequency Induction-Heat Sintering Process, Advances In Materials And Processing Technologies (Ampt), Dubai, 2014.