

CURRICULUM VITAE



Dr. Sajjad Ali

Lecturer in Physics

Department of Physics

University of Peshawar

Peshawar, Pakistan

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PERSONAL PROFILE

Physicist and materials scientist with more than 13 years of academic, research, and laboratory experience in mineral characterization, mineral beneficiation, hydrometallurgy, and sustainable extraction of strategic and precious metals. Extensive expertise in operation of mineral processing equipment, beneficiation flowsheet development, hydrometallurgical process optimization, and analytical characterization of ores. Experienced in establishing laboratory-scale mineral processing facilities, supervising multidisciplinary research projects, and translating laboratory research into pilot-scale mineral upgradation technologies.

EDUCATION

Ph.D. in Physics

University of Peshawar, Peshawar, Pakistan

Year of Completion: 2021

Thesis: PHASE, MICROSTRUCTURAL CHARACTERIZATION AND PHYSICOCHEMICAL BENEFICIATION OF LOW-GRADE MANGANESE ORES FROM MOHMAND DISTRICT, PAKISTAN.

M.Phil. in Physics

University of Peshawar, Peshawar, Pakistan

Year of Completion: 2013

*Thesis: **EXTRACTION, UP-GRADATION AND EXPLOITATION OF MANGANESE AND BARITE MINERAL ORES IN KHYBER PUKHTOONKHWA (KPK).***

M.Sc in Physics

University of Peshawar, Peshawar, Pakistan

Year of Completion: 2008

PROFESSIONAL EXPERIENCE**Assistant Professor**

Department of Physics, University of Peshawar, Peshawar, Pakistan

2025 – Present

Lecturer in Physics

Department of Physics, University of Peshawar, Peshawar, Pakistan

2013 – 2025.

- Teaching undergraduate and postgraduate courses in physics and materials science
- Supervising BS, M.Phil., and Ph.D. student research projects
- Leading research on sustainable extraction technologies and materials characterization
- Organizing academic workshops, seminars, and contributing to curriculum review

Research Assistant

Department of Physics, University of Peshawar, Peshawar, Pakistan

2009 – 2012

- Assisted in research projects related to mineral processing/material synthesis.
 - Conducted experimental work and data analysis
 - Contributed to collaborative research publications
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ADMINISTRATIVE EXPERIENCE

1). Car taker of the Multipurpose mineral and metallic ore upgradation pilot plot (Oct. 2013 – till date)

- 2). BS-Program Coordinator at Department of Physics, UoP (September, 2024 – till date)
 - 3). Resident Warden at Engineer Sadaat Mand Hostel (Block-C)
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Mineral Processing & Laboratory Expertise

Mineral Beneficiation Equipments: Jaw Crusher, Roller Crusher, Ball Mill, Pulverizer, Laboratory Sieve Shaker, Magnetic Separator, Shaking Table, Froth Flotation Cell, Hydrocyclone, Drying Oven, Muffle Furnace, Roasting Furnace, Mechanical Stirrer Reactors, Vacuum Filtration Unit, Electrowinning Cell, Cyanidation Leaching Reactor.

Hydrometallurgical Expertise: Gold extraction, cyanide/thiosulfate leaching, acid leaching, reductive leaching, precipitation, cementation, electrowinning, solution purification, process optimization, critical metal recovery, kinetic modelling.

Mineral Characterization: XRD, XRF, SEM-EDS, TEM, FTIR, TGA/DTA, AAS, UV-Vis, optical microscopy, phase and microstructural characterization.

Mineral Processing Skills: Crushing, grinding, liberation studies, gravity concentration, magnetic separation, froth flotation, flowsheet development, pilot plant planning.

Key Skills & Technical Competencies

Mineral processing, hydrometallurgy, analytical techniques, laboratory establishment, equipment procurement, SOP development, project management, grant proposal preparation.

Selected Research Projects

Hydrometallurgical Extraction of Gold from Black Sand; Beneficiation of Manganese, Iron Ore, Chromite and Graphite ores; Recovery of Critical Metals from Waste Lithium-Ion Batteries.

Research Publications

- 1) Samreena Firdous, Tabassum Ferdous, Sarir Uddin, **Sajjad Ali**, Khaled Althubeiti, and Muhammad Mushtaq, (2025) **“Enhanced Dielectric and Energy Storage Performance in Lithium-Modified Sodium Niobate Perovskites”**, ECS Journal of Solid-State Science and Technology, 14, 103003.
- 2) **S Ali**, S Ahmad, J Farooq, S Uddin, B Chen, I Ullah, MM Alam, (2025) **“The effect of A-site strontium substitution on the energy storage properties of ferroelectric BaZr_{0.2}Ti_{0.8}O₃ system”**, Ceramics International 51 (11), 14821-14833.
- 3) MA Muhammad Fahad, Khizar Hussain Shah, **Sajjad Ali**, (2024) **“Spectroscopic diagnostics of eggshells plasma using LIBS with self-absorption correction in conjunction with WDXRF, EDS and FTIR techniques”**, the European physical journal d.

- 4) S Ahmad, **S Ali**, I Ullah, MM Alam, (2024) **“Characterization of manganese ferrite nanoparticles synthesized through pyrometallurgy”**, Solid State Sciences 154, 107621.
- 5) **Sajjad Ali**, Salar Ahmad, Asghar Ali, Amir Shahzad, Muhammad Naeem, (2024) **“Phase, Mineral-Chemical and Microstructural Characterization of Chromite Ore”**, Dandao Xuebao/Journal of Ballistics 36 (1), 124-34.
- 6) **Sajjad Ali**, Salar Ahmad, (2024) **“Phase and microstructural characterization of swat soapstone ($Mg_3Si_4O_{10}(OH)_2$)”**, Reviews on Advanced Materials Science.
- 7) **Sajjad Ali**, Salar Ahmad, (2024) **“Utilization of waste marble dust as cement and sand replacement in concrete”**, Discover Civil Engineering 1 (15).
- 8) KH Shah, M Fahad, **S Ali**, A Batool, I Shah, U Farooq, A Shahzad, (2023) **“Potential of natural ferruginous manganese (NFM) ore as a natural adsorbent for As (III) removal at low concentration”**, International Journal of Environmental Analytical Chemistry 103 (18), 7252-7269.
- 9) **S Ali**, S Ahmad, SA Ali, L Khalid, I Ullah, (2023) **“Synthesis and characterization of lithium manganese oxide ($LiMn_2O_4$) from manganese ore via solid state reaction route”**, Pakistan Journal of Scientific & Industrial Research Series A: Physical.
- 10) KH Shah, M Fahad, ZA Ghazi, **S Ali**, A Shahzad, SU Din, (2022) **“Optimization, characterization and adsorption properties of natural calcite for toxic As (III) removal from aqueous solutions”**, Water SA 48 (3), 295-303.
- 11) **Sajjad Ali**, Yaseen Iqbal, Khizar Hussain Shah, and Muhammad Fahad, (2022) **“Synthesis and kinetic modeling of manganese carbonate precipitated from manganese sulfate solution”**, Chemical Engineering Communications. 209 (1), 96-107.
- 12) S Ahmad, **Sajjad Ali**, I Ullah, MS Zobaer, A Albakri, T Muhammad, (2021) **“Synthesis and characterization of manganese ferrite from low grade manganese ore through solid state reaction route”**, Scientific reports 11 (1), 16190.
- 13) **S Ali**, Y Iqbal, I Khan, A Ullah, M Sadiq, M Fahad, KH Shah, (2021) **“Hydrometallurgical leaching and kinetic modeling of low-grade manganese ore with banana peel in sulfuric acid”**, International Journal of Minerals, Metallurgy and Materials 28 (2), 193-200.
- 14) M Fahad, A Shahzad, **S Ali**, KH Shah, (2021) **“Qualitative and quantitative analysis of steatite using calibration-free laser-induced breakdown spectroscopy in conjunction with x-ray fluorescence spectroscopy and Fourier ...”**, Applied Optics 60 (17), 5110-5116.
- 15) **Sajad Ali**, Fahad Nawaz, Yaseen Iqbal, (2021), **“Phase, Microstructural Characterization and Beneficiation of Iron ore by Shaking table”**, Pak. j. sci. ind. res. Ser. A: phys. sci., **64 A** (1), 19-25.
- 16) M Fahad, **S Ali**, A Shahzad, KH Shah, (2020) **“Determination of base metals and gold in Pb-Sb sulfosalt mineral boulangerite using laser-induced breakdown spectroscopy and inductively coupled plasma optical emission ...”**, Laser Physics 30 (9), 095701.

- 17) Muhammad Fahad, **Sajjad Ali**, Yaseen Iqbal, (2019) **“Plasma diagnostics by optical emission spectroscopy on manganese ore in conjunction with XRD, XRF and SEM-EDS”**, Plasma Science and Technology (Plasma Sci. Technol.), , 21 085507 (8pp).
- 18) Muhammad Fahad, **Sajjad Ali**, Khizar Shah, Muhammad Shehzad and Muhammad Abrar, (2019) **“Quantitative Elemental Analysis of High Silica bauxite using Calibration-free Laser-Induced Breakdown Spectroscopy (CF-LIBS)”**, Applied optics. 58 (27), 7588-7896.
- 19) **Sajjad Ali**, Yaseen Iqbal, Muhammad Fahad, (2019) **“A comprehensive phase, minero-chemical and microstructural investigation of low-grade manganese ore”**, Mater. Res. Express 6 (11), (2019) 115527.
- 20) Khizar Hussain Shah, Abdul Ghafoor, Muhammad Fahad, **Sajjad Ali** and Haroon Ahmad (2019), **“Natural Ferruginous Manganese Ore as a Potential Low-cost Adsorbent for Congo Red Dye Removal from Aqueous Solution”**, Mater. Res. Express 6 125515.
- 21) **S Ali**, M Hashim, A Ahmad, Y Iqbal, (2019) **“Extraction of gold from boulangerite ore using sodium cyanide”**, Journal of the Pakistan Institute of Chemical Engineers 47 (2), 01-07.
- 22) **Sajjad Ali**, Yaseen Iqbal, Kamran Ahmad, Billal Afridi, (2018) **“Phase, Microstructure and Beneficiation of Manganese Ore by Acid Leaching”**, Journal of Minerals and Materials Characterization and Engineering, 2018, 6 (1), 60-71.
- 23) **Sajjad Ali**, Sami Ullah, Muhammad Haris, Yaseen Iqbal, (2018) **“Extraction of Gold from Boulangerite ore by ammonium thiocyanate (NH₄SCN)”**, Pak. j. sci. ind. res. Ser. A: phys. sci., 61 A (3), 145-148.
- 24) **Sajjad Ali**, Yaseen IQBAL, Umar FAROOQ, Sajjad AHMAD, (2016) **“Leaching of manganese ores using corncob as reductant in H₂SO₄ solution”** Physicochem. Probl. Miner. Process. 52(1), 2016, 56–65.
- 25) **Sajjad Ali**, Yaseen Iqbal and Rick Uvic, (2011), **“Phase and Microstructural Characterization of Hazara Barite, Pakistan”**, JPMS Conference Issue, Materials 2011, 5(2), , 30-34.
- 26) **Sajjad Ali**, Yaseen Iqbal and Rick Uvic, (2010) **“Manganese deposits in Khyber Pukhtonkhwa (KPK): An Introduction”** JPMS Conference Issue, Materials, 4(1), 2010, 43-46.

** (Detailed publication list available upon request or on ORCID/Google Scholar
https://scholar.google.com/citations?hl=en&user=b_JfqbgAAAAJ)*

Research Posters

- 1) "Manganese deposits in Khyber Pukhtonkhwa (KPK)", Presented in MPCPEP-2010, in All Pakistan USAID Projects presentation at cerena hotel Islamabad and in Khyber Chamber of Commerce and Industries KPK, Peshawar.
- 2) "Phase and microstructural characterization and beneficiation of iron ore by shaking table and magnetic separator", Presented in Materials – 2015.
- 3) "Phase and Microstructural Characterization and Beneficiation of Manganese ore by Shaking Table and Froth Flotation", got second best research poster prize in conference "Materials - 2015".
- 4) "Leaching of Manganese ores using corncob as reductant in H₂SO₄ solution", Presented in Materials – 2015.
- 5) "Multipurpose Mineral and Metallic ore Up-gradation Plant"

Research Activities

- Approved Research Supervisor (**IRTC Number=021-AM-22**) in project Interdisciplinary Research Training Center (**IRTC**) under the Directorate of Science and Technology (**DoST**).
- Reviewer for journals: Journal of materials science research and reviews, Materials Research Express, Physicochemical Problems of Mineral Processing, Pakistan journal of scientific and industrial research.

Research Books

"Characterization and Up-gradation of Manganese and Barite mineral ores", **Noor Publishers** (<https://www.noor-publishing.com/>), **SBN-13: 978-3-330-84948-8**, **ISBN-10: 3330849487**, **EAN: 9783330849488**.

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Professional Memberships

- Member, International Mineral Processing Society (IMPS)
- Member, Materials Research Society (MRS)
- Reviewer for *Journal of Sustainable Metallurgy, Minerals Engineering*

RESEARCH INTERESTS

- Sustainable resource extraction and materials recovery
 - Hydrometallurgical and green chemistry processes
 - Science, technology, and innovation (STI) policy
 - AI integration in scientific research and resource management
 - Circular economy and critical raw materials
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Professional Certification

- **‘National Faculty Development Program for newly inducted faculty members of HEIs’** awarded by National Academy of Higher Education (NAHE), HEC Islamabad, December 06 – 21, 2023.
- **‘Semester Regulations of University of Peshawar’** organized by CHRCD, University of Peshawar, May 9 – 11, 2017.
- 7th Annual FATA workshop **‘Industrial and Mineral Growth in FATA’** organized by Cell for FATA Studies, University of Peshawar, December 21, 2016.
- **‘5th Invention to Innovation Summit’** organized by University of Haripur, November 3-4, 2015.
- **‘3rd Invention to Innovation Summit’** organized by University of the Punjab, Lahore, March 19 -20, 2014.

Professional Memberships

- Member, International Mineral Processing Society (IMPS)
 - Member, Materials Research Society (MRS)
 - Reviewer for *Journal of Sustainable Metallurgy, Minerals Engineering*
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Scientific conferences attended

- 1) “Where Academia and Industry Meet 2007-I”, University of Peshawar. February 3, 2007.
- 2) “Where Academia and Industry Meet 2007-II”, PC -Peshawar. December 3, 2007.
- 3) “MPCPEP-2010 (Materials Processing, Characterization, Properties and their Economic Potential)”, University of Peshawar, March 30, 2010.
- 4) “International Scientific Spring-2010 (ISS-2010)”, National Center for Physics (NCP), Islamabad. April 20, 2010.

- 5) "MPCPEP-2011 (Materials Processing, Characterization, Properties and their Economic Potential)", University of Peshawar, December 20-22, 2011.
- 6) 13th National Symposium "Frontiers in Physics", University of Peshawar. December 19-21, 2012.
- 7) "3rd Invention to Innovation Summit 2014", University of the Punjab. March 19-20, 2014.
- 8) "Materials - 2015 (Materials Processing, Base metal extraction, Characterization, Properties and their Economic and Energy Potential)", University of Peshawar, April 22-23, 2015.
- 9) "How to Develop Strong Linkages between Business, Industry and Academia", Higher Education Commission (HEC), Islamabad. August 6, 2015.
- 10) "5th Invention to Innovation Summit 2015, KP", University of Haripur. November, 3- 4, 2015.
- 11). "Industrial and Mineral Growth in FATA", 7TH annual FATA workshop at University of Peshawar. December 21, 2016.

LANGUAGES

- English (Fluent)
- Urdu (Native)
- Pashtu [Mother languages]

REFERENCES

Available upon request.