Curriculum Vitae: Dr. Sajad Ali

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EDUCATION

Ph.D. (Physics)	Department of Physics, University of Peshawar, Pakistan (December 2020)
Supervisor	Prof. Yaseen Iqbal (University of Peshawar, Pakistan)

PROFESSIONAL EXPERIENCE

Oct. 2013 – till date	**Lecturer of Physics** at Department of Physics, University of Peshawar, Pakistan
Oct. 2009 – Oct. 2012	**Research Assistant** in Joint Pak-US S&T Cooperative Program (Award No. PGA-P280420) funded by the National Academy of Sciences (USA) and Higher Education Commission of Pakistan (Project ID: 131) and National Sciences Foundation (NSF), USA Major Instrumentation Program (Award No. 0521315)

TECHNICAL EXPERIENCE

Sample Preparation

- Sample preparation for Hydrometallurgical leaching of metallic ores via crushing, grinding and sieving for process mineralogy, floatation and magnetic separation.
- Sample preparation (pellet) for dielectric measurement using Low frequency LCR meter.
- Sample preparation (pellet) for spectrochemical analysis using **Laser-induced Breakdown Spectroscopy** (LIBS).
- Sample preparation (powder) for phase analysis using X-ray diffraction.
- Sample preparation for chemical and microstructure analysis using Transmission electron microscope (TEM).
- Sample preparation (solid) using grinding and polishing machine for microstructure analysis using scanning electron microscope and polarized light optical microscope.
- Sample preparation (natural materials) for physical and mechanical properties tests.

Characterization

- Q-switched Nd:YAG laser with **LIBS** 2000 detection system (Ocean Optics, US) for spectrochemical analysis of natural materials and nano-particles.
- Extensively used X'Pert^3 Powder Advanced multi-channel X-ray diffractometer (**XRD**) for phase analysis in powder form.
- Expert in handling JEOL JSM 5910 scanning electron microscope (**SEM**) and Zeiss-Axioplan-1 polarizing optical microscope for microstructural and minero-petrographic analysis.
- Expert in characterizing the materials by Thermogravimetric and Differential thermal analysis (**TG/DTA**), X-ray fluorescence spectroscopy (**XRF**), Energy-dispersive X-ray spectroscopy (**EDS**), Fourier-transform infrared spectroscopy (**FTIR**), Inductively coupled plasma – optical emission spectroscopy (**ICP-OES**), Atomic Absorption Spectroscopy (**AAS**) physical and mechanical properties measurements of natural materials.
- Enough experience on different computer software's used for the characterization purposes, e.g., X-ray diffraction (XRD) software's: WinXPOW, TRACES, CMPR and LOGIC software's for phase analysis, PYRIS MANAGER for thermal analysis, OriginLab, EndNote, and XnView, Image J. etc.

SUCCESSFUL EXECUTION OF RESEARCH PROJECTS

- Extraction of Manganese (**Mn**) from low grade Mn-ores and kinetic modeling of the process.
- Up-gradation of low grade **Mn-ores** via Physical beneficiation processes viz magnetic separation, gravity separation (shaking table) and froth floatation at pilot plant scale.
- Synthesis and characterization of pure **Mn-oxide** and **Mn-ferrites** from PLS solution of Mn-ore.
- Extraction of **Gold**, **antimony** and **lead** from Boulangerite ($Pb_5Sb_4S_{11}$) ore via Hydrometallurgical leaching process.
- Extraction of **Gold** from placer black sand via gravity separation, thiourea and cyanidation leaching process.
- Extraction of **Aluminium** from Bauxite ore.
- Preparation and characterization of **Sodium dichromate** from Chromite ores.
- Characterization and extraction of **copper** from copper ores via hydrometallurgical leaching.
- Characterization and extraction of iron from **iron** ores via hydrometallurgical leaching.
- Synthesis of **Barium Titanate** from local barite and titanium ores.
- Synthesis and characterization of KN-BZ ceramics for energy storage.
- Preparation of γ-ray shielding materials from Barite and Chromite ores.
- Reuse of waste marble dust as cement and sand replacement.

MEMBERSHIP OF SCIENTIFIC SOCIETIES

- Executive body member of "Pakistan Material Society (**PMS**)" University of Peshawar.

- Member of Pakistan Science Foundation (**PSF**) in organization of Pakistan Scientific and Technological Information Center (**PASTIC**).
- Pakistan Physical Society (PPS)

TEACHING EXPERIENCE

Nuclear Physics (Master and Undergraduate Course)	2015 – till date
Electromagnetic Theory (EMT) (Undergraduate Course)	2014 – 2019
Thermodynamics and Statistical Physics (Undergraduate Course)	2015 – 2016
Mathematical Methods of Physics (Graduate/Undergraduate Course)	2013 – till date
Mechanics (Undergraduate Course)	2015 – 2017
Nuclear Lab-IV (Graduate) and Lab-VI (Undergraduate)	2015 – till date

LANGUAGES

- English – Excellent in reading and Good in writing and conversation.
- Urdu – Excellent in reading, writing and conversation.

RESEARCH ACTIVITIES

- 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.*
- Approved Research Supervisor (IRTC Number=021-AM-22) in project Interdisciplinary Research Training Center (IRTC) under the Directorate of Science and Technology (DoST).

LIST OF PUBLICATIONS

Peer Reviewed Publications

1.	**Optimization, characterization and adsorption properties of natural calcite for toxic As(III) removal from aqueous solutions** Khizar Hussain Shah, Muhammad Fahad, Zahid Ali Ghazi, **Sajjad Ali,** Asim Shahzad and Salah Ud Din Water SA 48(3) 295–303 / Jul 2022. https://doi.org/10.17159/wsa/2022.v48.i3.3909
2.	**Synthesis and characterization of manganese ferrite from low grade manganese ore through solid state reaction route** Salar Ahmad, **Sajjad Ali**, Ikram Ullah, M. S. Zobaer, Ashwag Albakri & Taseer Muhammad **Scientific Reports** | (2021) 11:16190 | https://doi.org/10.1038/s41598-021-95625-z.
3.	**Potential of natural ferruginous manganese (NFM) ore as a natural adsorbent for As(III) removal at low concentration** Khizar Hussain Shah, Muhammad Fahad, **Sajjad Ali**, Aneeqa Batool, Irfan Shah, Umar Farooq &

	Asim Shahzad International journal of environmental analytical chemistry https://doi.org/10.1080/03067319.2021.1969379.
4.	**Qualitative and quantitative analysis of steatite using calibration-free laser-induced breakdown spectroscopy in conjunction with x-ray fluorescence spectroscopy and Fourier-transform infrared spectroscopy** Muhammad Fahad, Asim Shahzad**, Sajjad Ali,** AND Khizar Hussain Shah Applied Optics. 60(17), 2021.
5.	**Hydrometallurgical leaching and kinetic modeling of low-grade manganese ore with banana peel in sulfuric acid** **Sajjad Ali**, Yaseen Iqbal, Inamullah Khan, Ansar Ullah, Muhammad Fahad, Khizar Hussain Shah *International Journal of Minerals, Metallurgy and Materials*, 28 (2), 2021, 193-200. (IF: 1.713) DOI: https://doi.org/10.1007/s12613-020-2069-1.
6.	**Phase, Microstructural Characterization and Beneficiation of Iron ore by Shaking table** **Sajjad Ali**, Fahad Nawaz, Yaseen Iqbal Pak. j. sci. ind. res. Ser. A: phys. sci. 2021, 64 A (1), 19-25.
7.	**Synthesis and kinetic modeling of manganese carbonate precipitated from manganese sulfate solution** **Sajjad Ali**, Yaseen Iqbal, Khizar Hussain Shah, Muhammad Fahad *Chemical Engineering Communications*, 2020, (*In Press*) (IF: 1.802). DOI: 10.1080/00986445.2020.1839434.
8.	**Determination of base metals and gold in Pb-Sb sulfosalt mineral Boulangerite using laser-induced breakdown spectroscopy (LIBS) and inductively coupled plasma – optical emission spectrometry (ICP-OES)** Muhammad Fahad, **Sajjad Ali**, Asim Shahzad, Khizar Hussain Shah *Laser Physics*, 30(09), 2020, 095701 (IF: 1.333) DOI: https://doi.org/10.1088/1555-6611/aba195.
9.	**Natural Ferruginous Manganese Ore as a Potential Low-cost Adsorbent for Congo Red Dye Removal from Aqueous Solution** Khizar Hussain Shah, Abdul Ghafoor, Muhammad Fahad, **Sajjad Ali**, Haroon Ahmad *Materials Research Express*, 2019, 6(12), 125515 (IF: 1.929) DOI: https://doi.org/10.1088/2053-1591/ab56b8.
10.	**A comprehensive phase, minero-chemical and microstructural investigation of low-grade manganese ore** **Sajjad Ali**, Yaseen Iqbal, Muhammad Fahad *Materials Research Express*, 6(11), 2019, 115527 (IF: 1.929) DOI: https://doi.org/10.1088/2053-1591/ab4c23.
11.	**Quantitative Elemental Analysis of high silica bauxite using calibration-free laser-induced breakdown spectroscopy** Muhammad Fahad, **Sajjad Ali**, Khizar Hussain Shah, Asim Shahzad, Muhammad Abrar *Applied Optics*, 58(27), 2019, 7588-7596. (IF: 1.961) DOI: https://doi.org/10.1364/AO.58.007588.
12.	**Plasma diagnostics by optical emission spectroscopy on manganese ore in conjunction with XRD, XRF and SEM-EDS** Muhammad Fahad, **Sajjad Ali**, Yaseen Iqbal *Plasma Science and Technology*, 21(8), 2019, 085507 (IF: 1.358) DOI: https://doi.org/10.1088/2058-6272/ab1977.

13.	**Phase, Microstructure and Beneficiation of Manganese Ore by Acid Leaching** **Sajjad Ali**, Yaseen Iqbal, Kamran Ahmad, Billal Afridi Journal of Minerals and Materials Characterization and Engineering, 2018, 6 (1), 60-71.
14.	**Extraction of Gold from Boulangerite ore by ammonium thiocyanate (NH_4SCN)** **Sajjad Ali**, Sami Ullah, Muhammad Haris, Yaseen Iqbal Pak. j. sci. ind. res. Ser. A: phys. sci. 2018, 61 A (3), 145-148.
15.	**EXTRACTION OF GOLD FROM BOULANGERITE ORE USING SODIUM CYANIDE** Sajjad Ali Journal of the Pakistan Institute of Chemical Engineers 47 (2)
16.	**Leaching of manganese ores using corncob as reductant in H_2SO_4 solution** **Sajjad Ali**, Yaseen IQBAL, Umar FAROOQ, Sajjad AHMAD Physicochem. Probl. Miner. Process. 52(1), 2016, 56−65.
17.	**Phase and Microstructural Characterization of Hazara Barite, Pakistan** **Sajjad Ali**, Yaseen Iqbal and Rick Ubic, JPMS Conference Issue, Materials 2011, 5(2), 2011, 30-34.
18.	**Manganese deposits in Khyber Pukhtonkhwa (KPK): An Introduction** **Sajjad Ali**, Yaseen Iqbal and Rick Ubic JPMS Conference Issue, Materials 2010, 4(1), 2010, 43-46.

References

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