



Saira Sehar

Date of birth: 31/01/1995 | **Phone number:** (+39) 3498383140 (Mobile) | **Email address:** saira.sehar@studenti.unipd.it |

Address: Via F. Marzolo 9, Ex Fiscia Tecnica, 35131, padova, Italy (Work)

ABOUT ME

Materials and Corrosion Researcher with hands-on experience in electrochemical testing (PDP, DL-EPR, CPT), heat treatment, and advanced microstructural analysis (SEM, EBSD, DSC, DTA). Specialized in duplex and super duplex stainless steels with a strong focus on corrosion resistance, phase transformations, and mechanical property evaluation. Skilled in laboratory techniques, data interpretation (ImageJ, MTEX), and collaborative research on spinodal decomposition. Adaptable, results-driven, and eager to contribute to material development and corrosion control in industrial environments.

EXPERTISE

I am quite amenable to work in all emerging fields :

- Electrochemical testing: PDP, SCC, CPT and DL-EPR using Gamry potentiostat
- Corrosion analysis of duplex/super duplex stainless steels in chloride environments
- Microstructure-corrosion relationship via SEM, EBSD, and ImageJ
- Experience with thermal analysis (DSC, DTA) for phase transformation studies
- Skilled in heat treatment and its effect on corrosion resistance
- Failure analysis and material degradation assessment
- Mechanical testing: nanoindentation, Vickers hardness (micro/macro) and Charpy Test
- Working knowledge of Thermo-Calc and JMAT PRO for phase prediction

WORK EXPERIENCE

 UNIVERSITY OF LIÈGE – BELGIUM

INTERN – CORROSION & MATERIALS RESEARCH – 03/03/2025 – 30/06/2025

- Conducted metallographic sample preparation: sectioning, grinding, polishing, and electrolytic etching
- Carried out **EBSD analysis** for phase and grain boundary characterization
- Operated **DTA and DSC** for thermal behavior and phase transformation analysis
- Performed **nanoindentation, microhardness, and macrohardness** testing to evaluate mechanical properties
- Utilized **ImageJ** for microstructural image analysis and quantitative measurements
- Analyzed the effect of heat treatment on corrosion resistance and phase evolution in duplex stainless steel
- Maintained lab documentation, followed safety protocols, and contributed to ongoing research discussions

 UNIVERSITY OF PADUA – ITALY

RESEARCHER – MATERIALS AND CORROSION ENGINEERING – 01/10/2022 – CURRENT

- Investigated duplex and super duplex stainless steels, focusing on corrosion behavior and microstructural evolution
- Conducted electrochemical testing (PDP, SCC, CPT and DL-EPR) to assess corrosion resistance in chloride environments
- Designed and executed heat treatment experiments to study sigma phase formation and phase transformations
- Collaborated with the research group on the analysis of **spinodal decomposition** and its effect on material properties
- Performed metallographic sample preparation, electrolytic etching, and microscopic analysis (SEM, optical microscopy)
- Applied EBSD and EDS techniques for phase mapping, misorientation analysis, and interface characterization
- Utilized ImageJ and MTEX (MATLAB) for microstructure quantification and crystallographic analysis
- Conducted thermal analysis using DSC and DTA to study phase transitions and transformation kinetics

- Performed mechanical testing: nanoindentation, microhardness, and macrohardness
- Documented research findings in reports, presentations, and peer-reviewed publications

COURSES

Courses

- Summer School on Additive manufacturing
- Corrosion Summer School by EFC in Brussels, August 2023
- Corrosion and protection of metals
- Technology of Metals
- Electrochemistry
- Basic Analytical Chemistry by University of UTokyoX on EDX.
- Introduction of Chemistry ; Structures and Solutions by Duke University on Coursera.
- Introduction to Molecular Spectroscopy by University of Manchester on Coursera.
- Advance Chemistry by University of Kentucky on Coursera.
- Water Quality and Biochemical engine by EPFL on EDX.

EDUCATION AND TRAINING

09/10/2019 – 28/01/2022 Lahore, Pakistan

MPHIL CHEMISTRY Minhaj University Lahore

Research: I worked with one of my professor in Chemistry department as Research Assistant on project "Recovery of gold by activated carbon from ammonical thiosulphate solution". For recovery of gold, I worked with different extraction instruments in lab.

Major Subjects:

- Thermal Analysis, Food Pharmaceutical Chemistry, Nano Chemistry, Advance Analytical Chemistry, Spectroscopic Analysis, Electroanalytical Chemistry, Green Chemistry, Chromatography and Solid state Chemistry.

Address Minhaj UI Quran University Rd, Township Twp Commercial Area Lahore, Punjab 54770, 54770, Lahore, Pakistan |

Website www.mul.edu.pk | **Field of study** chemistry | **Final grade** 3.78 /4 |

Thesis Recovery of gold by activated carbon from ammonical thiosulphate solution

01/09/2014 – 10/05/2018 Faisalabad, Pakistan

BS HONS CHEMISTRY Govt.College for Women University, Faisalabad

Analytical Chemistry, Inorganic Chemistry, Organic Chemistry, Nano Chemistry, Spectroscopy, Bio Chemistry

Address Madina Town, Faisalabad., 38000, Faisalabad, Pakistan | **Website** www.gcwuf.edu.pk | **Field of study** Chemistry |

Final grade 3.83/4

PUBLICATIONS

2025

[Comparison of the precipitation of secondary phases in cast & wrought SDSS](#)

Authors: Saira Sehar, Mirko Pigato, Claudio Gennari & Irene Calliari | **Journal Name:** Duplex world conference 2024 | **Publisher:** Stainless steel world publisher

2021

Research Paper on "Recovery of Copper from Copper ores by roasting at different temperatures".

Sehar, S., Khan, M. M. S. A., Iqbal, A., Saif, W., & Zahid, M. Recovery of Copper from Copper ores by roasting at different temperatures.

2022

Recovery of gold by activated carbon from Ammonical thiosulphate solution

International Journal of Scientific and Research Publications, Volume 12, Issue 10, October 2022

Role of ZnO nanoparticles for improvement of antibacterial activity in food packaging

S Sehar, IH Khan - Asian journal of pharmaceutical research, 2021

Mycotoxins detection in food using advanced, sensitive and robust electrochemical platform of sensors: A review

F Jubeen, A Batool, I Naz, S Sehar, H Sadia, A Hayat... - Sensors and Actuators A: Physical, 2024

Synthesis of zinc oxide nano particles from moringa tree leaves by green method and also check its antibacterial activity against gram positive and gram negative Bacteria

S Sehar, MSA Khan, T Hussain, M Zahid, M Mobeen... - Asian Journal of Pharmacy and Technology, 2022

TD-DFT study of small organic molecules based on boron subphthalocyanines by modifying axial substituents for organic photovoltaics

F Abbas, T Nasir, MA Ahmad, S Sehar, International Journal of Scientific and Research ..., 2021

CONFERENCES AND SEMINARS

National and International

- Attended the Duplex World Conference, which was held in Rotterdam, Netherlands, in 2024.
- Present "Study of precipitation of secondary phases in UNS S32760 " in National 40 AIM conference held in Napoli from 11-13 Sep 2024
- International conference on **MCHTSE-4 & TPMS-5** Conference was held in Lecce from April 17th to 19th, 2024
- International Workshop on High Strength Steels (HSS-2023), was held in Bergamo – Italy, on 26-27 October 2023 attended as Participant
- Seminar on "Welding Technology advances & trends for metallic materials" by Prof Argelia Fabiola.
- Semianr on "Green synthesis of oxide nanoparticles ,production, characterization & applications" by Prof Loubna Chetibi
- Cambridge Health-tech institute 5th Annual E-International Conference of Drug Discovery Chemistry Virtual (August 25-28,2020).
- Attended 2nd International Conference on Recent Advances in Chemical Sciences at GCU, Lahore (2019) .
- Attended 1st International Symposium on chemotherapeutic agents at GCU, Faisalabad (2019) .
- Attended International Chemistry Conference at Institute of Chemical Sciences, BZU Multan (March 2019) .
- Two Day Symposium on "How to write a write up", organized by Govt. College and Women University Faisalabad, Pakistan.[31/01/2018 – 01/02/2018]
- One Day Symposium on "Chemical Approach to Cope Environmental Hazards", organized by Govt. College and Women University Faisalabad, Pakistan. [5/01/2014 – 06/01/2014]

HONOURS AND AWARDS

Honors/awards/scholarships

- Got Erasmus-funded Leadership Training in Braga, Portugal, by Arqus Alliance, July 2025.
- Got Erasmus+ internship at university of Liege, Belgium ,(March-June 2025)
- Research Funding from Industrial Engineering Department of Padua University (2022-2025)
- Got the Best Teacher Award in the Annual Day Function by Sheikhpura College of Science and Commerce (2020).
- Got a merit Scholarship In Mphil Chemistry from Minhaj University lahore (2019).
- Got Laptop on merit by PM Nawaz Sharif (2014).
- Got 2nd Position in Annual debate Contest at the Tehsil level in Sheikhpura (2012).

LANGUAGE SKILLS

Mother tongue(s): **URDU**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	B2	B2	C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● SKILLS

Outlook | ESP | Esprit | Decision-making

Skills

Microsoft Excel | Microsoft Powerpoint | Microsoft Word | image J (Labratoary Image Analysis) | ESPRIT 2.1 | Leadership, Critical thinking and Emotional Intelligence | Problem Solving (Problem Analisys) | Team-work oriented | Good listener and communicator | Written and Verbal skills | Organizational and planning skills | Critical thinking

● REFERENCES

Professor

Prof. Irene Calliari (Full Professor at the University of Padua), Working at Industrial Engineering Department, Unipd, Italy, **Email:** irene.calliari@unipd.it

Dr. Izhar Ul Haque Khan (Full Prof.of Chemistry at Minhaj University Lahore Pak.),X- HOD UE Lhr Department of Chemistry. X-MemberScience/Chairman:"Pakistan Council of Scientific & Industrial Research" (PCSIR PAK), **Email:**dr.izhar.khan111@gmail.com.