CURRICULUM VITAE

ALIREZA KARIMI

Isfahan - Iran | +(98)9136937570 | alirezakrm.github.io | alireza.karimi.19995@gmail.com

EDUCATION

2017-2020 | *Iran University of Science and Technology (IUST)* — *TEHRAN, IRAN*
M.Sc. in Materials Engineering
- **GPA:** 84 / 100
- **Thesis Title:** Investigating the parameters affecting the joining of tungsten carbide to low-alloy steel using combustion synthesis reactions of Ni-Ti powder mixture
- **Supervisors**: Prof. M. Adeli (adelim@iust.ac.ir), Prof. M. Soltanieh (mansour_soltanieh@iust.ac.ir)

2013-2017 | *Golpayegan College, Isfahan University of Technology (IUT)* — *ISFAHAN, IRAN*
B.Sc. in Metallurgy and Materials Engineering
- **GPA**: 73 / 100 (via 142 credits), last two year = 90 / 100
- **Thesis Title:** Production of amorphous Fe-Ni-Cr coatings by electric deposition process
- **Supervisor:** Prof. S. M. Rafiaei (rafiaei@gut.ac.ir)

RESEARCH INTERESTS

- Advanced Materials (e.g., Nanomaterials, Shape Memory Alloys, Energy Storage Materials) Synthesis, Welding, Processing and Characterization
- Data analysis and data science
- Additive Manufacturing (3-D Printing) - Numerical Modelling (FEM, CFD)

RESEARCH EXPERIENCE

Investigating the effect of Mechanical Activation Duration (MAD) on microstructure and corrosion behavior of TiAl intermetallic compounds

2022-Now | *Supervisors: Prof. M. Adeli*
School of Materials and Metallurgy Engineering, IUST

- Fabricated **NiAl Intermetallic compounds** with various MAD via SHS process
- Performed **microstructural characterization** (SEM) of TiAl samples with various MSDs.
- Investigated **corrosion behavior** of TiAl samples with **various MAD** (In process)

Joining of tungsten carbide to low carbon steel by using combustion synthesis reactions

2018-2020 | *Supervisors: Prof. M. Adeli, Prof. M. Soltanieh*
School of Materials and Metallurgy Engineering, IUST

- Fabricated WC-Co / VCN-150 **dissimilar joint** via **combustion synthesis** in **Ni-Ti** compound
- **Designed** and **fabricated** a novel **set-up** for exerting **an axial force** on the welding components in the **Argon** atmosphere and **decreasing** the interlayer **porosity**

- Performed **microstructural characterization** of joint layer using **(SEM), mechanical characterization** of joint using **Shear strength** test and **Micro hardness** Profile test and phase analysis of interlayer via **XRD** techniques

Combustion synthesis welding of 316-steel to VCN-150

2018-2020

Supervisors: Prof. M. Adeli, Prof. M. Soltanieh
School of Materials and Metallurgy Engineering, IUST

- **Fabricated** 316-steel / VCN-150 **dissimilar joint** via combustion synthesis in **Ni-Ti** compound
- **Designed** and **fabricated** a novel **set-up** for exerting **an axial force** on the welding components in the **Argon** atmosphere for the sake of decreasing interlayer **porosity**
- **Performed microstructural (SEM) characterization** of joints and phase analysis of interlayer via **XRD** techniques

Investigating the effect of space holder materials on the porosity of synthesized Ni-Ti products

2019-2020

Supervisors: Prof. M. Adeli
School of Materials and Metallurgy Engineering, IUST

- **Quantified** the impact of **space holder** materials on the **distribution** and **size** of the porosities in the synthesized Ni-Ti intermetallic compounds
- Performed **microstructural characterization (SEM)** on samples and **Phase analysis** of samples via **XRD techniques**

Fabrication of amorphous Fe-Ni-Cr coatings by electric deposition process

2015-2017

Supervisors: Prof. M. S. Rafiaei
School of Materials and Metallurgy Engineering, IUT

- Investigated the effect of **current density** on **coating thickness** and coating structure (**amorphous** and **crystalline**)

PUBLICATIONS

JOURNAL ARTICLES

- A. Karimi, M. Adeli, M. Soltanieh, **Dissimilar joining of cemented carbide to low-carbon steel via combustion welding: Effect of process parameters on the interfacial microstructure and joint strength**, Journal of Manufacturing Process, Vol. 77, Pages 551-560, https://doi.org/10.1016/j.jmapro.2022.03.043
- A. Karimi, M. Adeli, M. Soltanieh, **The application of combustion synthesis reactions in Ni-Ti system in the joining of steel to tungsten carbide**, Journal of New Materials, Vol. 11, pages 103-114, 20.1001.1.22285946.1399.11.41.8.2

CONFERENCE PAPER

- A. Karimi, M. Adeli, M. Soltanieh, **Investigating the possibility of establishing steel-steel joints using combustion synthesis reactions**, 8th International Conference and Exhibition on Materials Engineering and Metallurgy Oct. 2019, https://civilica.com/doc/963690/

HONORS AND AWARDS

- **Awarded governmental full scholarship from Iran University of Science and Technology (Tuition Waiver)**

Issued by Ministry of Science, Research and Technology · Sep 2017
Awarded to the results of national entrance exam for 2-3 years of M.Sc .

- **Awarded governmental fund from Iran University of Science and Technology (Research Grant)**

Issued by Ministry of Science, Research and Technology · Sep 2017

- **Awarded governmental full scholarship from Isfahan University of Technology (Tuition Waiver)**

Issued by Ministry of Science, Research and Technology · Sep 2013
Awarded to the results of national entrance exam for 4-5 years of B.Sc (B.Eng).

- **Awarded governmental fund from Isfahan University of Technology (Research Grant)**

Issued by Ministry of Science, Research and Technology · Sep 2013

TEACHING EXPERIENCES

- Graduate Teaching Assistant **of Metallurgical Process Laboratory (Sept 2017 – Jan 2018)**
  Instructor: Prof. M. Adeli (adelim@iust.ac.ir),
  School of Materials and Metallurgy Engineering, Iran University of Science and Technology

WORK EXPERIENCES

Metallurgical Laboratory Manager

Sep2021-Now | *ATASHGAH STEEL COMPANY* *ISFAHAN, IRAN*

- **Supervision** of equipment's **calibration**
- **Administrated** all **events**, **activities**, and **issues** related to the laboratory**,** Customers, and Employees
- **Teamwork leadership** in projects which defined for solving challenges in the production process

Metallurgical Laboratory Expert

2021(Feb-Sep) | *HAMIRAN STEEL COMPANY* *TEHRAN, IRAN*

- Acquired **Hands-on experience** with **microstructural characterization equipment** (Optical Microscope, Scanning Electron Microscope, Laser Microscope)
- **Hands-on experience** working with **an Optical Emission Spectroscopy Machine (Foundry Master),** Universal **tensile testing machine (Gotech),** and Universal **Hardness Tester**

Patent Engineer (USPTO)

2020(Jan-Oct) | *IDI COMPANY* *TEHRAN, IRAN*

- I have worked as a **patent engineer** in issuing **patent** certificates (materials science) for inventors

Scientific Student Administrator (Volunteer)

2015-2017 | *SCHOOL OF MATERIALS AND METALLURGY ENGINEERING, IUT* *TEHRAN, IRAN*

- **Organized** several **extracurricular activities** for materials engineering students
- **Administrated** various industrial visits for students

Engineering Internship

2016(Apr-Sep) | *ISFAHAN STEEL COMPANY* *ISFAHAN, IRAN*

- Performed **standardized mechanical and microstructural QA tests** (ASTM, ISO, DIN) on final products
- Acquired **hands-on experience** working in the **Steelmaking**, **Continuous casting** and **rolling** sections

TECHNICAL SKILLS AND CERTIFICATES

- **Hands-on experience** of working with **Optical Emission Spectroscopy Machine (Foundry Master), Universal tensile testing machine (Gotech) and Universal Hardness Tester**
- **Hands-on experience** with the **microstructural characterization equipment** (Optical Microscope, Scanning Electron Microscope, Laser Microscope)
- **Hands-on experience** of working with **pyrometallurgy lab equipment** (e.g., tube furnace, induction furnace, ball mill, etc.)
- **Materials Data Science and Informatics** (acquired from Coursera)
- **Programming for Everybody (Getting Started with Python)** (acquired from Coursera)
- **What is Data Science?** (acquired from Coursera)
- **Data Science Orientation** (acquired from Coursera)
- **Transmission electron microscopy** for materials science (acquired from Coursera)
- **HSE** certificate from the Iran University of Science and Technology

COMPUTER SKILLS

Engineering Software

- Solidworks
- Highscore software (Highscore & Highscore plus)
- ANSYS CFX
- Origin
- Microsoft Office

Programming Languages

- Python

LANGUAGE SKILLS

Farsi

English

- **TOEFL Test (iBT):** It will be passed on December 17.

REFERENCES

- Dr. Mansour Soltanieh, Professor of Materials and Metallurgical Engineering, Iran University of Science and Technology, **mansour_soltanieh@iust.ac.ir**
- Dr. Mandana Adeli, Assistant Professor of Materials and Metallurgical Engineering, Iran University of Science and Technology, **adelim@iust.ac.ir**
- Dr. S. M. Rafiaei, Assistant Professor of Materials and Metallurgical Engineering, Golpayegan College of Engineering, Isfahan University of Technology, **rafiaei@gut.ac.ir**