

# Yazan Al-Zain

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## Education

03/2011

Ph.D. in Materials Science and Engineering, University of Tsukuba, Japan.

03/2008

M.Sc. in Materials Science and Engineering, University of Tsukuba, Japan.

02/2003

B.Sc. in Materials and Metallurgical Engineering, Al-Balqa' Applied University, Jordan.

## Research Experience

2/2020 – Now

1. Development of a novel machine for the detection of Corona Virus. Collaborative research with the Schools of Nursing and Engineering at the University of Jordan, and an independent researcher at the Government of Dubai.

2. Composites and Statistical Analysis collaborative research with the University of Sharjah and the University of Jordan.

8/2018 – Now

1. Investigation of the Biocompatibility of Zr- and Ti-based Shape Memory Alloys In Vivo and in Vitro, Team Leader of a collaborative research with The National Institute for Materials Science (Japan-Bioengineering Lab), The University of Tsukuba (Japan-Materials Engineering Lab), and The University of Jordan (Jordan - Schools of Engineering and Medicine).

2. Management-related research concentrating on Lean Six-Sigma research with researchers from the University of Jordan and the the American University of the Middle East (Kuwait).

07/2017 – 10/2017

Zr-based Shape Memory Alloys. University of Tsukuba, Department of Materials Science and Engineering, Japan.

07/2014 – 10/2014

Development and Characterization of Ti-based Ni-free Biomedical Shape Memory Alloys. University of Tsukuba, Department of Materials Science and Engineering, Japan.

09/2011 – 08/2012

Fabricating and Designing New Thin Film Materials Utilizing the Science of Nanotechnology. Faculty of Mechanical Engineering, Ruhr-University Bochum, Germany.

2006 – 2011

Development and Characterization of Ti-based Ni-free Biomedical Shape Memory Alloys. University of Tsukuba, Department of Materials Science and Engineering, Japan.

2002 – 2003

A Study on the Erosive Wear in a Cu-Al 2024 Alloy Used in Aircrafts. Al-Balqa' Applied University, Department of Materials and Metallurgical engineering, Jordan.

## Languages

Arabic: Mother tongue.

English: Spoken and written.

Japanese: Spoken.

## Work Experience

8/2018 – Now

Associate Professor at the University of Jordan, School of Engineering, Department of Industrial Engineering, Amman, Jordan.

2/2021 – 9/2021

Assistant Dean for Students Affairs and Training. IAESTE National Secretary / Jordan.

9/2016 – 8/2018

Assistant Professor at the University of Jordan, School of Engineering, Department of Industrial Engineering, Amman, Jordan.

6/2017 – 9/2017

Part-time Researcher at the University of Tsukuba, Faculty of Materials Engineering, Tsukuba, Japan.

9/2015 – 9/2016 (Being under unpaid leave from the University of Jordan)

Assistant Professor at the American University of the Middle East, Faculty of Engineering and Technology, Department of Industrial Engineering, Egaila, Kuwait.

2/2013 – 9/2015

Full-time Lecturer at the University of Jordan, School of Engineering, Department of Industrial Engineering, Amman, Jordan.

6/2013 – 6/2014

Part-time Lecturer at Al-Balqa' Applied University, Faculty of Engineering, Department of Materials and Metallurgical Engineering, Al-Salt, Jordan.

8/2012 – 1/2013

Materials specialist at the Arab Center for Engineering Studies, Amman, Jordan.

9/2011 – 8/2012

Postdoctoral research scientist at Ruhr-University Bochum, Bochum, Germany.

9/2003 – 3/2005

Metallography, Heat Treatment and Polymers laboratories supervisor. Al-Balqa' Applied University, Faculty of Engineering, Department of Materials and Metallurgical Engineering, Al-Salt, Jordan.

Some taught courses

Engineering Statics, Engineering Dynamics, Strength of Materials, Materials Science and Engineering (two levels), Manufacturing Processes (two levels), Metallurgical Processes, Composite Materials, Ceramics and Powder Metallurgy, Manufacturing Processes Laboratory, Engineering Workshop, Basic Math, and others.

## Training

Subject	Held by	Country	From	Until
Advances Biocompatibility Testing of Ti-and Zr-Based Alloys	The National Institute for Materials Science	Japan	20/08/2019	20/09/2019
Biocompatibility Testing of Ti-Based Alloys	The National Institute for Materials Science	Japan	30/08/2018	13/09/2018
Introduction to Transmission Electron Microscopy	Tsukuba University	Japan	01/05/2006	01/06/2006
Advanced Transmission Electron Microscopy	Ruhr-University Bochum	Germany	02/11/2011	08/11/2011
CNC (Computerized-Numerically Controlled) Mills	EXCEL Machine Tools	England	07/09/2004	28/09/2004
Internal Quality Auditing	United Group Consulting and Management	Jordan	18/08/2003	19/08/2003
Technical Aspects of Accreditation and Introduction to Quality Management	United Group Consulting and Management	Jordan	20/07/2003	24/07/2003

## Publication List

### a. Academic Journals:

- [1] Shape Memory Properties of Ti-Nb-Mo Biomedical Alloys. Al-Zain Y, Kim HY, Hosoda H, Nam TH, Miyazaki S. *Acta Mater* 2010;58:4212-4223.
- [2] Anomalous Temperature Dependence of the Superelastic Behavior of Ti-Nb-Mo alloys. Al-Zain Y, Kim HY, Koyano T, Hosoda H, Nam TH, Miyazaki S. *Acta Mater* 2011;59:1464-1473.
- [3] Room Temperature Aging Behavior of Ti-Nb-Mo-Based Superelastic Alloys. Al-Zain Y, Kim HY, Hosoda H, Nam TH, Miyazaki S. *Acta Mater* 2012;59:2437-2447.
- [4] Miniaturized Shape Memory Alloy Pumps for Stepping Microfluidic Transport. Sassa F, Al-Zain Y, Ginoza T, Miyazaki S, Suzuki H. *Sensors and Actuators B: Chemical* 2012;165:157-163.
- [5] A Comparative Study on the Effects of the  $\omega$  and  $\alpha$  Phases on the Temperature Dependence of Shape Memory Behavior of a Ti-27Nb Alloy. Al-Zain Y, Kim HY, Koyano T, Hosoda H, Miyazaki S. *Scripta Mater* 2015;103:37-40.
- [6] Effect of B Addition on the Microstructure and Superelastic Properties of a Ti-26Nb Alloy. Al-Zain Y, Kim HY, Miyazaki S. *Mat. Sci. and Eng. A* 2015; 644:85-9.
- [7] The Effect of Rolling Direction on the Weld structure and Mechanical Properties of DP 1000 Steel. Khraisat W, Abu Jadayil W, Al-Zain Y, Musmar S. *Cogent Engineering* (2018), 5: 1491019.
- [8] Implementing Lean Six Sigma in a Kuwaiti Private Hospital. Al-Zain Y, Alfandi L, Arafeh M, Salim S, Al-Quraini S; Al- Yaseen A, Abu Taleb D. *International Journal of Health Care Quality Assurance* 2019. Vol. 32 Issue: 2, pp.431-446.
- [9] Corrosion behavior, in vitro and in vivo biocompatibility of a newly developed Ti-16Nb-3Mo-1Sn superelastic alloy. Al-Zain Y, Yamamoto A, AlAjlouni JM, Al-Abbadi MA, Al-Sayyed MR, Aloweidi SA, Kim HY, Miyazaki S. *Mater Sci and Eng C* 2019;104:109906.
- [10] Novel beta-type high entropy shape memory alloys with low magnetic susceptibility and high biocompatibility. Hashimoto N, Al-Zain Y, Yamamoto A, Koyano T, Kim HY, Miyazaki S. *Mater Lett* 2021, 287, 129286.
- [11] Synthesis and characterization of a Ti-Zr-based alloy with ultra-low Young's modulus and excellent biocompatibility. Kim KM, Al-Zain Y, Yamamoto A, Daher AH, Mansour A, AlAjlouni JM, Aloweidi SA, Al-Abbadi MA, Kim HY, Miyazaki S. *Adv. Eng. Mater.* 200100776.

### b. International Conferences:

- [1] Effect of Omega Phase on Shape Memory Properties of Ti-base Alloys. Kim HY, AL-Zain Y, Inamura T, Hosoda H, Miyazaki S. 2012; 12th World Conference on Titanium, 1110-1113.

[2] Programable Microfluidic Processor with Pumping and Coulometric Detecting Functions. Sassa F, Al-Zain Y, Ginoza T, Fukuda J, Miyazaki S, Suzuki H. Transducers 2011; 16th International Solid-State Sensors, Actuators and Microsystems Conference:2287-2290.

[3] The Amorphous Range in Sputtered Combinatorial Thin-Film Libraries. Motemani Y, Savan A, Thienhaus S, Al-Zain Y, Ludwig A. 2012; Materials Science and Engineering Conference.

## Patents

1. Title: Micropump of liquid feeding control apparatus, has control section that impresses voltage to electrode and controls electric current, where tube-shaped elastic segment is inserted and fixed to through hole of shape-memory-alloy sheet.

Patent Number(s): JP2011226358-A

Inventor(s): AL-ZAIN Y, SUZUKI H, MIYAZAKI S, SASA F

Patent Assignee Name(s) and Code(s): UNIV TSUKUBA (UYTS-Non-standard)

2. Title: Viral Particles Rapid Detection System Using Flashing Ratchet Potential.

Inventor(s): AL-BQOUR MAHA, AL-BQOUR MOHAMMAD, HIJAZI LUJAIN, AL-ZAIN YAZAN.

Application submitted

## References

[1] Prof. Shuichi Miyazaki. Department of Materials Science and Engineering, Tsukuba University, Tsukuba, Ibaraki 305-8573, Japan. Email: miyazaki@ims.tsukuba.ac.jp

[2] Prof. Hee Young Kim, Department of Materials Science and Engineering, Tsukuba University, Tsukuba, Ibaraki 305-8573, Japan. Email: heeykim@ims.tsukuba.ac.jp

[3] Prof. Nasser Alhuniti. Dean of the School of Engineering, University of Jordan, Amman. Email: alhuniti@ju.edu.jo

[4] Prof. Alfred Ludwig, Chair of MEMS Materials, Institute of Materials, Faculty of Mechanical Engineering, Ruhr-University Bochum, Universitätsstr. 150, D-44801 Bochum, Germany. Email: alfred.ludwig@ruhr-uni-bochum.de

[5] Prof. Mohammad Al-Tahat. Former Head of the Department of Industrial Engineering, School of Engineering, The University of Jordan, Amman. Email: altahat@ju.edu.jo