Amir Hadadzadeh
Assistant Professor

Department of Mechanical Engineering
Engineering Science Building, Room 314
University of Memphis
Memphis, TN 38152, USA
amir.hadadzadeh@memphis.edu
(901) 678-2268

Education, Research and Professional Background

Aug 2019 – Present

Assistant Professor, Mechanical Engineering
University of Memphis, Memphis, Tennessee, USA

Nov 2017 – Aug 2019

Postdoctoral Fellow, Marine Additive Manufacturing Centre of Excellence (MAMCE)
University of New Brunswick, New Brunswick, Canada

Visiting Researcher, Natural Resources Canada
CanmetMATERIALS, Hamilton, Ontario, Canada

Feb 2016 – Nov 2017

Research Associate, Mechanical Engineering
University of Waterloo, Waterloo, Ontario, Canada

Feb 2013 – Feb 2016

Postdoctoral Fellow, Mechanical Engineering
University of Waterloo, Waterloo, Ontario, Canada

Sep 2008 – Jan 2013

Doctor of Philosophy, Mechanical Engineering
University of Waterloo, Waterloo, Ontario, Canada

Sep 2005 – Nov 2007

Master of Applied Science, Materials Science and Engineering (Welding Metallurgy)
Sharif University of Technology, Tehran, Iran

Sep 2001 – Sep 2005

Bachelor of Applied Science, Materials Science and Engineering (Industrial Metallurgy)
Sharif University of Technology, Tehran, Iran

Journal Papers

[1] A. Hadadzadeh, B. Shalchi Amirkhiz, A. Odeshi, J. Li, M. Mohammadi, *"Role of hierarchical microstructure of additively manufactured AlSi10Mg on dynamic loading behavior"*, Additive Manufacturing 28 (2019) 1–13.

[2] A. Hadadzadeh, B. Shalchi Amirkhiz, M. Mohammadi, *"Contribution of Mg_2Si precipitates to the strength of direct metal laser sintered AlSi10Mg"*, Materials Science & Engineering A 739 (2019) 295-300.

[3] A. Hadadzadeh, B. Shalchi Amirkhiz, A. Odeshi, M. Mohammadi, *"Dynamic loading of direct metal laser sintered AlSi10Mg alloy: Strengthening behavior in different building directions"*, Materials and Design 159 (2018) 201–211.

[4] A. Hadadzadeh, B. Shalchi Amirkhiz, J. Li, M. Mohammadi, *"Columnar to equiaxed transition during direct metal laser sintering of AlSi10Mg alloy: Effect of building direction"*, Additive Manufacturing 23 (2018) 121-131.

[5] A. Hadadzadeh, C. Baxter, B. Shalchi Amirkhiz, M. Mohammadi, *"Strengthening mechanisms in direct metal laser sintered AlSi10Mg: Comparison between virgin and recycled powders"*, Additive Manufacturing 23 (2018) 108-120.

[6] A. Hadadzadeh, B. Shalchi Amirkhiz, J. Li, A. Odeshi, M. Mohammadi, *"Deformation mechanism during dynamic loading of an additively manufactured AlSi10Mg_200C"*, Materials Science & Engineering A 722 (2018) 263-238.

[7] S. Shakerin, **A. Hadadzadeh,** B. Shalchi Amirkhiz, S. Shamsdini, J. Li, M. Mohammadi, *"Additive manufacturing of maraging steel-H13 bimetals using laser powder bed fusion technique"*, Additive Manufacturing 29 (2019) 100797.

[8] A. Hadadzadeh, F. Mokdad, B. Shalchi Amirkhiz, M.A. Wells, B.W. Williams, D.L. Chen, *"Bimodal Grain Microstructure Development during Hot Compression of a Cast-Homogenized Mg-Zn-Zr Alloy"*, Materials Science & Engineering A 724 (2018) 421-430.

[9] A. Hadadzadeh, F. Mokdad, M. A. Wells, D.L. Chen, *"Modeling dynamic recrystallization during hot deformation of a cast-homogenized Mg-Zn-Zr alloy"*, Materials Science & Engineering A 720 (2018) 180-188.

[10] A. Hadadzadeh, F. Mokdad, M. A. Wells, D.L. Chen, *"A New Grain Orientation Spread Approach to Analyze the Dynamic Recrystallization Behavior of a Cast-Homogenized Mg-Zn-Zr Alloy using Electron Backscattered Diffraction"*, Materials Science & Engineering A 709 (2018) 285-289.

[11] A. Javaid, **A. Hadadzadeh,** F. Czerwinski, *"Solidification behavior of dilute Mg-Zn-Nd alloys"*, Journal of Alloys and Compounds 782 (2019) 132-148.

[12] R. Islam, **A. Hadadzadeh,** M. Wells, M. Haghshenas, *"Characterization and analysis of hot compression behaviors of an ultralight Mg-Li-Al alloy"*, International Journal of Lightweight Materials and Manufacture (2019) – In Press.

[13] G. Liu, W. Xie, **A. Hadadzadeh**, G. Wei, Z. Ma, J. Liu, Y. Yang, W. Xie, X. Peng, M. Wells, *"Hot deformation behavior and processing map of a superlight dual-phase Mg-Li alloy"*, Journal of Alloys and Compounds 766 (2018) 460-469.

[14] A. Hadadzadeh, M. A. Wells, *"Analysis of the Hot Deformation of ZK60 Magnesium Alloy"*, Journal of Magnesium and Alloys 5 (2017) 369-387.

[15] T.W. Wong, **A. Hadadzadeh,** M.J. Benoit, M.A. Wells, *"Impact of Homogenization Heat Treatment on the High Temperature Deformation Behavior of Cast AZ31B Magnesium Alloy"*, Journal of Materials Processing Technology 254 (2018) 238-247.

[16] T.W. Wong, **A. Hadadzadeh,** M.A. Wells, *"High Temperature Deformation Behavior of Extruded AZ31B Magnesium Alloy"* Journal of Materials Processing Technology 251 (2018) 360-368.

[17] A. Hadadzadeh, M.A. Wells, S. K. Shaha, H. Jahed, B.W. Williams, *"Role of compression direction on recrystallization behavior and texture evolution during hot deformation of extruded ZK60 magnesium alloy"*, Journal of Alloys and Compounds 702 (2017) 274–289.

[18] A. Hadadzadeh, M.A. Whitney, M.A. Wells, S.F. Corbin, *"Analysis of Compressibility Behavior and Development of a Plastic Yield Model for Uniaxial Die Compaction of Sponge Titanium Powder"*, Journal of Materials Processing Technology 243 (2017) 92-99.

[19] A. Hadadzadeh, M.M. Ghaznavi, A.H. Kokabi, *"HAZ Softening Behavior of Strain-Hardened Al-6.7Mg Alloy Welded by GMAW and Pulsed GMAW Processes"*, The International Journal of Advanced Manufacturing Technology 92 (2017) 2255-2265.

[20] A. Hadadzadeh, M.A. Wells, A. Javaid, *"Warm and Hot Deformation Behavior of As-Cast ZEK100 Magnesium Alloy"*, Experimental Mechanics 56 (2016) 259-271.

[21] A. Hadadzadeh, M.A. Wells, *"Inverse and Centreline Segregation Formation in Twin Roll Cast AZ31 Magnesium Alloy"*, Materials Science and Technology 31 (2015) 1715-1726.

[22] G. Wei, Y. Mahmoodkhani, X. Peng, **A. Hadadzadeh**, T. Xu, J. Liu, W. Xie, M.A. Wells, *"Microstructure evolution and simulation study of a duplex Mg–Li alloy during Double Change Channel Angular Pressing"*, Materials and Design 90 (2016) 266-275.

[23] G. Wei, X. Peng, **A. Hadadzadeh**, Y. Mahmoodkhani, W. Xie, Y. Yang, M.A. Wells, *"Constitutive modeling of Mg-9Li-3Al-2Sr-2Y at elevated temperatures"*, Mechanics of Materials 89 (2015) 241-253.

[24] G. Wei, X. Peng, J. Liu, **A. Hadadzadeh,** Y. Yang, W. Xie, *"Microstructure evolution and mechanical properties of Mg-9Li-3Al-2Sr in change channel angular pressing"*, Materials Science and Technology 31 (2015) 1757-1763.

[25] G. Wei, X. Peng, F. Hu, **A. Hadadzadeh**, Y. Yang, W. Xie, , M.A. Wells, *"Deformation behavior and constitutive model for dual-phase Mg–Li alloy at elevated temperatures"*, Transactions of Nonferrous Metals Society of China 26 (2016) 508-518.

[26] G. Wei, X. Peng, B. Zhang, **A. Hadadzadeh**, T. Xu, W. Xie, *"Influence of I-phase and W-phase on Microstructure and Mechanical Properties of Mg-8Li-3Zn Alloy"*, Transactions of Nonferrous Metals Society of China 25 (2015) 713-720.

[27] A. Hadadzadeh, M.A. Wells, I.H. Jung, *"Scale-Up Modeling of the Twin Roll Casting Process for AZ31 Magnesium Alloy"*, Journal of Manufacturing Processes 16 (2014) 468-478.

[28] A. Hadadzadeh, M.A. Wells, V. Jayakrishnan, *"Development of a Mathematical Model to Study the Feasibility of Creating a Clad AZ31 Magnesium Sheet via Twin Roll Casting"*, The International Journal of Advanced Manufacturing Technology 73 (2014) 449-463.

[29] A. Hadadzadeh, M.M. Ghaznavi, A.H. Kokabi, *"The Effect of Gas Tungsten Arc Welding and Pulsed-Gas Tungsten Arc Welding Processes' Parameters on the Heat Affected Zone-Softening Behavior of Strain-Hardened Al–6.7Mg Alloy"*, Materials and Design 55 (2014) 335–342.

[30] A. Hadadzadeh, M.A. Wells, *"Mathematical Modeling of Thermo-Mechanical Behavior of Strip during Twin Roll Casting of an AZ31 Magnesium Alloy"*, Journal of Magnesium and Alloys 1 (2013) 101-114.

[31] A. Hadadzadeh, M.A. Wells, *"Thermal Fluid Mathematical Modelling of Twin Roll Casting (TRC) Process for AZ31 Magnesium Alloy"*, International Journal of Cast Metals Research, 26-4 (2013) 228-238.

Peer-Reviewed Conference Papers and Conference Presentations

[1] A. Hadadzadeh, B. Shalchi Amirkhiz, B. Langelier, J. Li, M. Mohammadi, *"Evolution of a Gradient Microstructure in Direct Metal Laser Sintered AlSi10Mg"*, In: The Minerals, Metals & Materials Series. TMS 2019, 148th Annual Meeting & Exhibition Supplemental Proceedings (2019) 331-338.

[2] A. Hadadzadeh, B. Shalchi Amirkhiz, J. Li, M. Mohammadi, *"Microstructure Evolution in Direct Metal Laser Sintered Corrax Maraging Stainless Steel"*, In: The Minerals, Metals & Materials Series. TMS 2019, 148th Annual Meeting & Exhibition Supplemental Proceedings (2019) 455-462.

[3] C. Dharmendra, **A. Hadadzadeh,** B. Shalchi Amirkhiz, M. Mohammadi, *"The Morphology, Crystallography, and Chemistry of Phases in Wire-Arc Additively Manufactured Nickel Aluminum Bronze"*,

In: The Minerals, Metals & Materials Series. TMS 2019, 148th Annual Meeting & Exhibition Supplemental Proceedings (2019) 443-453.

[4] P. Prakash, **A Hadadzadeh**, S.K. Shaha, M.A. Whitney, M.A. Wells, H. Jahed, B.W. Williams, *"Microstructure and Texture Evolution During Hot Compression of Cast and Extruded AZ80 Magnesium Alloy"*, Magnesium Technology 2019, 89-94.

[5] A. Hadadzadeh, S.K. Shaha, M.A. Wells, H. Jahed, B.W. Williams, *"Microstructure and Texture Evolution during Hot Deformation of Cast-Homogenized ZK60 Magnesium Alloy"*, Magnesium Technology 2017, 513-519, Springer International Publishing.

[6] S.M.H. Karparvarfard, S.K. Shaha, **A. Hadadzadeh**, H. Jahed, M.A. Wells, B.W. Williams, *"Characterization of Semi-closed Die-Forged ZK60 Mg Alloy Extrusion"*, Magnesium Technology 2017, 329-334, Springer International Publishing.

[7] A. Hadadzadeh, S.K. Shaha, M.A. Wells, H. Jahed, B.W. Williams, *"Recrystallization Behavior and Texture Evolution during Hot Deformation of Extruded ZK60 Magnesium Alloy "*, In Contributed Papers from Materials Science & Technology 2016, Paper presented at MS&T16, Salt Lake City, Utah, USA, pp. 281-288.

[8] A. Hadadzadeh, M.A. Whitney, M.A. Wells, S.F. Corbin, *"Room Temperature Uniaxial Die Compaction Behavior of Titanium Sponge Granules"*, COM 2015 - 54th Annual Conference of Metallurgists, 23-26 August 2015, Toronto, ON, Canada, Paper No. 9025.

[9] T.W. Wong, **A. Hadadzadeh**, M.A. Whitney, M.A. Wells, *"Anisotropic Flow Behaviour of Extruded AZ31B Magnesium Alloy During Isothermal Uniaxial Compression"*, COM 2015 - 54th Annual Conference of Metallurgists, August 2015, Toronto, ON, Canada, Paper No. 9027.

[10] A. Javaid, F. Czerwinski, R. Zavadil, M. Aniolek, **A. Hadadzadeh**, *"Solidification Characteristics of Wrought Magnesium Alloys Containing Rare Earth Metals"*, in Magnesium Technology 2014, [eds.] M. Alderman, M. V. Manuel, N. Hort, N. R. Neelameggham, John Wiley & Sons, Inc., Hoboken, NJ, USA, pp. 197-202.

[11] M.A. Wells, **A. Hadadzadeh,** *"Twin Roll Casting (TRC) of Magnesium Alloys – Opportunities and Challenges"*, Materials Science Forum, 783-786 (2014) 527-533.

[12] A. Hadadzadeh, M.A. Wells, *"Effect of Roll Diameter on the Thermal-Mechanical Behaviour of AZ31 Strip during Twin Roll Casting"*, in Magnesium Technology, Proceedings of Materials Science and Technology (MS&T) 2013, [eds.] W. J. Poole, L. Bichler, I. H. Jung, Montreal, QC, Canada, pp. 1503-1506.

[13] A. Hadadzadeh, M.A. Wells, (2013), *"Mathematical Modeling of the Effect of Roll Diameter on the Thermo-Mechanical Behavior of Twin Roll Cast AZ31 Magnesium Alloy Strips"*, in Magnesium Technology 2013, [eds.] N. Hort, S. N. Mathaudhu, N. R. Neelameggham and M. Alderman, John Wiley & Sons, Inc., Hoboken, NJ, USA, pp. 371-375.

[14] A. Hadadzadeh, M.A. Wells, E. Essadiqi, *"Mathematical Modeling of the Twin Roll Casting Process for AZ31 Magnesium Alloy – Effect of Strip Thickness"*, Proceedings of 9th International Conference on Magnesium Alloys and their Applications, [eds.] W. J. Pool and K. U. Kainer, Vancouver, Canada, 2012, pp. 177-182.

[15] A. Hadadzadeh, M.A. Wells, E. Essadiqi, (2012), *"Mathematical Modeling of the Twin Roll Casting Process for AZ31 Magnesium Alloy – Effect of Set-Back Distance"*, in Magnesium Technology 2012, [eds.] S. N. Mathaudha, W. H. Sillekens, N. R. Neelameggham and N. Hort, John Wiley & Sons, Inc., Hoboken, NJ, USA, pp. 141-144.

[16] A. Hadadzadeh, M.A. Wells, E. Essadiqi, *"Mathematical Modelling of the Twin Roll Casting for Magnesium Alloys - Effect of Heat Transfer Coefficient between the Roll and the Strip"*, Proceedings of 8th International Conference on Magnesium Alloys and their Applications, [ed.] K. U. Kainer, Weimar, Germany, 2009, pp. 138-144.

[17] A. Hadadzadeh, M.A. Wells, *"Hot deformation behavior of extruded ZK60 Magnesium Alloy"*, The 28th Canadian Materials Science Conference, McMaster University, Hamilton, ON, Canada, 2016.

[18] P. Prakash, **A. Hadadzadeh**, M.A. Wells, B.W. Williams, *"Hot deformation behavior and forgeability of AZ80 Magnesium alloy"*, The 28th Canadian Materials Science Conference, McMaster University, Hamilton, ON, Canada, 2016.

[19] A. Hadadzadeh, M.A. Whitney, M.A. Wells, S.F. Corbin, *"Room Temperature Uniaxial Die Compaction Behavior of Titanium Sponge Granules"*, The 27th Canadian Materials Science Conference, Dalhousie University, Halifax, NS, Canada, 2015.

[20] T.W. Wong, **A. Hadadzadeh**, M.A. Whitney, M.A. Wells, *"Anisotropic Flow Behaviour of Extruded AZ31B Magnesium Alloy During Isothermal Uniaxial Compression"*, The 27th Canadian Materials Science Conference, Dalhousie University, Halifax, NS, Canada, 2015.

[21] J. O'Flynn, **A. Hadadzadeh**, M.A. Wells, S. Corbin, *"Roll Compaction of Sponge Titanium Powder"*, The 27th Canadian Materials Science Conference, Dalhousie University, Halifax, NS, Canada, 2015.

[22] A. Hadadzadeh, V. Jayakrishnan, M.A. Wells, *"Feasibility of Creating a Clad AZ31 Magnesium Sheet via Twin Roll Casting "*, The 25th Canadian Materials Science Conference, McGill University, Montreal, QC, Canada, 2013.

[23] A. Hadadzadeh, M.A. Wells, E. Essadiqi, *"Mathematical Modeling of the Twin Roll Casting Process for AZ31 Magnesium Alloy – Effect of Set-Back Distance"*, International Conference on Processing and Manufacturing of Advanced Materials, THERMEC 2011, Quebec City, Quebec, Canada.

[24] A. Hadadzadeh, M.A. Wells, E. Essadiqi, *"Mathematical Modeling of the Twin Roll Casting Process for AZ31 Magnesium Alloy-Study the Surface Defects Formation and Caster Scale-up Effects on the Predicted Results"*, The 23rd Canadian Materials Science Conference, University of British Columbia, Okanagan Campus, Kelowna, BC, Canada, 2011.

[25] A. Hadadzadeh, M.A. Wells, E. Essadiqi, *"Mathematical Modeling of the Twin Roll Casting for AZ31 Magnesium Alloy"*, The 22nd Canadian Materials Science Conference, University of Waterloo, Waterloo, ON, Canada, 2010.

Teaching Experience

University of Memphis, Memphis, Tennessee, USA
MECH 3320-Engineering Materials
MECH 3325-Materials Laboratory

University of Waterloo, Waterloo, Ontario, Canada
Teacher Assistant (TA) for:
ME340-Manufacturing Processes (Jan-Apr 2009, May-Aug 2010, May-Aug 2011, May-Aug 2012)

ME230-Control of Properties of Materials (Sep-Dec 2011)

MATH117-Calculus 1 for Engineering (Sep-Dec 2011)

Reviewer for

Journal of Alloys and Compounds
Materials Characterization
Journal of Materials Processing Technology
JOM