

Seyed Mahmood Fatemi

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Research Interest:

- **Physical Metallurgy of light alloys**
- **Deformation behavior of Metals at high and low temperatures**
- **Severe plastic deformation of light alloys**
- **Microstructural characterization**

Degrees

Ph. D.

Materials Eng., University of Terhran, Tehran, Iran (May 2012)

Thesis:

The effect of accumulative back extrusion (ABE) Process on achieving ultrafine and nano structures in AZ31 magnesium alloy

M.S.

Metallurgical and Material Engineering, University of Tehran, Tehran, Iran (Sept. 2005)

Thesis:

An Investigation to the Hot Deformation Characteristics of AZ31 Magnesium Alloy

GPA: 17.67

B.Sc.

Metallurgical and Material Engineering, University of Tehran, Tehran, Iran, (Sept. 2002)

Thesis:

Design and Manufacturing of an Extrusion Die Set.

GPA: 16.59, (The top student in the Bachelor level)

Cooperated Researches

- 1) **Visiting Researcher, “Characterization of ultrafined magnesium alloys” , Polytechnique University of Catalonia and Fundació CTM Centre Tecnològic, Barcelona, Spain (2011).**
- 2) “Effect of Different Microstructures on Fatigue Properties of Medium Carbon Vanadium microalloyed Steel”, University of Tehran (2007).
- 3) “Effect of TMP parameters on the final microstructure of ALTHIX (A356), University of Tehran”, (2006).
- 4) The static restoration Processes in Mg AZ31 alloy, University of Tehran, (2005).
- 2) Internship with Sapco (Supplying Automotive Co.) on a Project Entitled " Study of automobile universal joints failure ", Iran (2001 summer).
- 5) Internship with Sapco (Supplying Automotive Co.) on a Project Entitled " Problem Solving of failure of torsion bars", Iran (2002 summer).
- 6) Internship with IranKhodro Co. (Car Manufacturer Co.) on a Project Entitled "Research in Discovering and Problem Solving of fracture of jigs and fixtures pins" (2003 summer).
- 5) Working on Niroo Research Institute as a researcher for Life Assessment of Steam Turbine Components Projects, Iran (Winter 2004).

Teaching

- 1) “Advanced Materials characterization methods”, University of Yazd, 2008.
- 2) “Design of thin wall pressure vessels”, “Design of thick wall pressure vessels”, Applied & Technical university, Iranian welding research & Eng. Center, 2006-2008.
- 3) "Mechanical Properties of Materials ", Dept. of Met and Mat. Eng., Tehran University, 2001-2002, (*Teaching Assistant*).
- 4) "Creep in Metals ", Dept. of Met and Mat. Eng., Tehran University, 2003-2004, (*Teaching Assistant*).

Selected Publication

- 1) S.M. Fatemi, A. Zarei-Hanzaki, J.M. Cabrera, “Microstructure, texture and tensile properties of ultrafine/nano grained magnesium alloy processed by accumulative back extrusion”, Metallurgical and Materials Transaction A, Vol48m 2017, pp. 2563-2573.
- 2) S.M. Fatemi, A. Zarei-Hanzaki, H. Paul, “Strain-induced nano recrystallization in AZ31 magnesium:TEM characterization”, Journal of Alloys and Compounds Vol. 699, 2017, pp. 796-802.

- 3) S.M. Fatemi, A. Zarei-Hanzaki, H. Paul, "Compressive Deformation Behavior of an Ultrafine/Nano Grained AZ31 Magnesium Processed by Accumulative Back Extrusion", *Arch. Metall. Mater.*, Vol. 61, 2016, p. 1247–1254.
- 4) S.M. Fatemi, A. Zarei-Hanzaki, "Review on ultrafined/nanostructured magnesium alloys produced through severe plastic deformation: microstructures", *Journal of Ultrafine & Nanostructured Materials*, Vol. 48, 2015, pp. 69-83.
- 5) S.M. Fatemi, A. Zarei-Hanzaki, "The Evolution of Texture in an Ultrafine and Nano Grained Magnesium Alloy", *Journal of Ultrafine & Nanostructured Materials*, 2015, Vol. 48, 2015, 11-16.
- 6) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, J.M. Cabrera, P. R. Calvillo, "EBSD characterization of repetitive grain refinement in AZ31 magnesium alloy", *Materials Chemistry & Physics*, Vol. 149–150, 2015, pp. 339-343.
- 7) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, H. Paul, "Characterization of ultrafine and nano grained magnesium alloy processed by severe plastic deformation", *Materials Characterization*, Vol. 87, 2014, 27-35.
- 8) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, R. Vaghar, J.M. Cabrera, "The origin of microstructure inhomogeneity in Mg-3Al-1Zn processed by severe plastic deformation", *Materials Science and Engineering A*, Vol. 551, 2012, 128-132.
- 9) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, "Microstructural evolution in AZ31 magnesium alloy processed by a new severe plastic deformation method" *International Journal of Modern Physics B*, Vol. 5, 2012, 316-324.
- 10) S.M. Fatemi-Varzaneh, J.M. Cabrera, A. Zarei-Hanzaki, "Microstructure and Mechanical Properties of an AZ31 Magnesium Alloy Processed by Accumulative Back Extrusion (ABE)", *Materials Science Forum*, Vols. 667-669, 2011, pp. 1033-1038.
- 11) S. M. Fatemi-Varzaneh, A. Zarei-Hanzaki, "Shear banding phenomenon during severe plastic deformation of an AZ31 magnesium alloy", *Journal of Alloys and Compounds*, Vol.506, 2011, 3806-3810.
- 12) S. M. Fatemi-Varzaneh, A. Zarei-Hanzaki and S. Izadi, "Shear deformation and grain refinement during accumulative back extrusion of AZ31 magnesium alloy", *Journal of Materials Science*, 2011, Vol. 46, 2011, pp. 1937-1944.
- 13) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, "Processing of AZ31 magnesium alloy by a new noble severe plastic deformation method", *Materials Science and Engineering A*, Vol. 528, 2011, 1334–1339.

- 14) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, M. Naderi, Ali A. Roostaei, "Deformation homogeneity in accumulative back extrusion processing of AZ31 magnesium alloy", *Journal of Alloys and Compounds*, Vol. 507, 2010, 207-214.
- 15) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, "Accumulative back extrusion (ABE) processing as a novel bulk deformation method", *Materials Science and Engineering A*, Vol. 504, 2009, pp. 104-106.
- 16) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, M. Haghshenas, "The room temperature mechanical properties of hot-rolled AZ31 magnesium alloy", *Journal of Alloys and Compounds*, Vol. 475, 2009, pp. 126-130.
- 17) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, H. Beladi, "Dynamic recrystallization in magnesium alloy AZ31", *Material Science and Engineering A* 456, pp. 52-57, 2007.
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- 18) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, M. Haghshenas, "A study on the effect of thermo-mechanical parameters on the deformation behavior of Mg-3Al-1Zn", *Materials Science and Engineering A*, Vol. 497, 2008, pp. 438-444.
- 19) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, M. Haghshenas, "Accumulative Roll Bonding of AZ31 Magnesium Alloy", *International Journal of Modern Physics B*, 2008, Vol. 22, pp. 2833-3839.
- 20) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, R. Vaghar, "Discontinuous dynamic recrystallization during accumulative back extrusion of magnesium", *Journal of Ultrafine & Nano Structured Material*, Vol. 26, 2013, pp. 25-29.
- 21) Sh. Asqardoust, A. Zarei-Hanzaki, S.M. Fatemi, M. Moradjoy-Hamedani, "High temperature deformation behavior and microstructural evolutions of a high Zr containing WE magnesium alloy", *Journal of Alloys and Compounds* 669 (2016) 108-116.
- 22) A. Salandari-Rabori, A. Zarei-Hanzaki, S.M. Fatemi, M. Ghambari, M. Moghaddam, "Microstructure and superior mechanical properties of a multi-axially forged WE magnesium alloy", *Journal of Alloys and Compounds*, Volume 693, 5 2017, Pages 406-413.
- 23) P. Shaterani, A. Zarei-Hanzaki, S.M. Fatemi-Varzaneh, B. hassas-Irani, "The Second Phase Particles and Mechanical Properties of 2124 Aluminum Alloy Processed by Accumulative Back Extrusion", *Materials & Design*, Vol. 58, 2014, pp. 535-542.
- 24) M. Eskandari, A. Zarei-Hanzaki, F. Pilehva, H.R. Abedi, S.M. Fatemi-Varzaneh, A.R. Khalesian, "Ductility Improvement in AZ31 Magnesium Alloy Using Constrained Compression Testing Technique", *Materials Science and Engineering: A*, Vol. 576, 2013, pp. 74-81.

- 25) A. Chalay-Amoly, A. Zarei-Hanzaki, P. Changizian, S.M. Fatemi-Varzaneh, "An investigation into the microstructure/strain pattern relationship in backward extruded AZ91 magnesium alloy", *Materials & Design*, Vol. 47, 2013, pp. 820-827 .
- 26) A. Haft Baradaran, A. Zarei-Hanzaki, H.R. Abedi, S.M. Fatemi-Varzaneh, A. Imandoust, "The ductility behavior of a high-Mn twinning induced plasticity steel during cold-to-hot deformation" *Materials Science and Engineering: A*, Vol. 561, 2013, pp. 411-418.
- 27) B. Bazaz, A. Zarei-Hanzaki, S.M. Fatemi-Varzaneh, "Hardness and Microstructure Homogeneity of Pure Copper Processed by Accumulative Back Extrusion", *Materials Science and Engineering*, Vol. 559, 2012, pp. 595-600.
- 28) F. Pilehva, A. Zarei-Hanzaki, S.M. Fatemi-Varzaneh, "The influence of initial microstructure and temperature on the deformation behavior of AZ91 magnesium alloy", *Materials & Design*, Vol. 42, 2012, pp. 411-417.
- 29) F. Pilehva, A. Zarei-Hanzaki, S.M. Fatemi, "Hot deformation behavior and dynamic recrystallization in Ti-6Al-7Nb biomedical alloy in single beta phase region", *Journal of Materials Engineering & Performance*, Vol. 24, 2015, pp. 1799-1808.
- 30) M. H. Razmpoosh, A. Zarei-Hanzaki, S. Heshmati-Manesh, S.M. Fatemi-Varzaneh, A. Marandi, "The grain structure and phase transformations of TWIP steel during friction stir processing", *Journal of Materials Engineering & Performance*, 2015, Vol. 24, 2826-2835.
- 31) M. Moradjoy-Hamedani, A. Zarei-Hanzaki, S. M. Fatemi, Sh. Asqardoust, "The microstructure evolution of a high Zr containing WE magnesium alloy through isothermal semi-solid treatment", *Advanced engineering Materials*, 2015, Vol. 17, 1623–1630.
- 32) Z. Shahri, A. Zarei-Hanzaki, H.R. Abedi, S.M. Fatemi-Varzaneh, "An Investigation to the Hot Deformation Characteristics of AZ31 alloy through Continuous Cooling Compression Testing Method", *Materials & Design*, Vol. 36, 2012, 470-476.
- 33) A.A. Roostaei, A. Zarei-Hanzaki, M.H Parsa, S.M. Fatemi-Varzaneh, "An analysis to plastic deformation behavior of AZ31 alloys during accumulative roll bonding process", *Journal of Materials Science*, Vol. 45, 2010, 4949-4500.
- 34) H.R. Abedi, A. Zarei-Hanzaki, S.M. Fatemi-Varzaneh, A. A. Roostaei, "The semi-solid tensile deformation behavior of wrought AZ31 magnesium alloy", *Materials & Design*, Vol. 31, 2010, 4186-4191.
- 35) M. Haghshenas, A. Zarei-Hanzaki, SM Fatemi-Varzaneh, and H. Abedi, "Hot deformation behaviour of Thixocast A356 aluminum alloy during compression at elevated temperature", *International Journal of Material Forming*, Vol.1, 2008, pp. 1001-1005.

- 36) M. Haghshenas, A. Zarei-Hanzaki, S.M. Fatemi-Varzaneh, “ The effects of thermo-mechanical parameters on the microstructure of Thixocast A356 aluminum alloy”, *Materials Science and Engineering A*, Vol.480, 2008, pp. 68-74.
- 37) M. Haghshenas, A. Zarei-Hanzaki, S.M. Fatemi-Varzaneh, “A study of the Si-phase growth mechanism in thixocast (A356) alloy during hot deformation”, *Journal of Materials Research*, Vol. 99, pp. 1-7, 2008.
- 38) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, "The Deformation Behavior of AZ31 Magnesium Alloy at Elevated Temperatures", *Iranian Journal of Material Science & Engineering*, Summer 2005, Vol. 2, p.8.
- 39) S.M. Fatemi, A. Zarei-Hanzaki, “TEM characterization of nano recrystallization in AZ31 magnesium alloy”, 3th international conference of Metallurgical Eng. Society, 2-3 Nov., 2014, Tehran
- 40) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, “Nano recrystallization during severe plastic deformation of AZ31 magnesium alloy”, 1th international conference of Metallurgical Eng. Society, 2-3 October, 2012, Tehran.
- 41) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, A. Araie, "Hot Deformation characteristics of AZ31 magnesium alloy", *ESAFORM 2005*, April 2005, Cluj-Napoka, Romania.
- 42) S.M. Fatemi-Varzaneh, A. Zarei-Hanzaki, "An Investigation to the Hot Working Behavior of AZ31 Magnesium Alloy", *COM 2005*, August 2005, Calgary, Canada.
- 43) M. Haghshenas, A. Zarei-Hanzaki, S.M. Fatemi-Varzaneh, “The study of Si phase growth mechanism in Al ALTHIX(A356) alloy during hot deformation”, *COM 2006*, Quebec , Canada.
- 44) M. Shamsi, A. Zarei-Hanzaki, S. M. Fatemi-Varzaneh, M. H. Naei, “An Investigation to Double Hit compression of AZ31 Magnesium Alloy at Elevated Temperatures”, 11th International Materials Symposium, April 2006, Denizli – Turkey.