CURRICULUM VITAE (January 2015)

Farzad Khodabakhshi

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Educational Background

Post-Doctoral Researcher **Sharif University of Technology, Tehran, Iran** 2014-present
Materials Science and Engineering (Welding, Nano materials)

Visiting Student **University of Waterloo, Ontario, Canada** 2013-2014
Center of Advance Materials Joining; Macro-Micro-Nano

Visiting Student **Slovak Academy of Sciences, Bratislava, Slovakia** 2012-2013
Institute of Materials and Machine Mechanics

Ph.D **Sharif University of Technology, Tehran, Iran** 2010-2014
Materials Science and Engineering (Welding, Nano materials)

M. Sc. **Sharif University of Technology, Tehran, Iran** 2008-2010
Welding & Joining

B. Sc. **Shiraz University, Shiraz, Iran** 2004-2008
Materials Science and Engineering (Industrial Metallurgy)

Theses and Projects

- **Post-Doc Fellow** *"Friction Stir and Laser Joining of Powder Metallurgy Processed Aluminum Matrix Nano-composites"*, September 2014 to present.
  Academic Supervisors:
  A. H. Kokabi (Prof. of Materials Science and Engineering)
  A. Simchi (Prof. of Materials Science and Engineering).
- **Ph.D Thesis** *"Microstructure-Mechanical Properties Relationships in Aluminum Metal Matrix Nanocomposites Reinforced via Al_3Ti and MgO Nanophases Prepared by Reactive Friction Stir Processing of Al5052 Alloy with TiO_2 Nanoparticles"*, June, 2014.
  Evaluated and Approved by the thesis committee as EXCELLENT degree.
  Academic Supervisors:
  A. H. Kokabi (Prof. of Materials Science and Engineering)
  A. Simchi (Prof. of Materials Science and Engineering).
- **M.Sc. Thesis**, *"An Investigation into the Spot Resistance Welding of Ultra-fine Grained Low Carbon Steel Sheets Produced by Severe Plastic Deformation"*, August, 2010.
  Evaluated and Approved by the thesis committee as EXCELLENT with a grade of 20 out of 20.
  Academic Supervisors:
  A. H. Kokabi (Prof. of Materials Science and Engineering)
  M. Kazeminezhad (Associate Prof. of Materials Science and Engineering).

- **B.Sc. Thesis**, *"Investigation the Effects of Alpha-Alumina Seeds on Densification Enhancement of Initial Nano-meter Size Gamma Alumina Powders",* September, 2008.
  Evaluated and approved as EXCELLENT with a grade of 20 out of 20.
  Academic Advisor:
  M. H. Paydar (Prof. of Materials Science and Engineering).

AWARDS/HONORS

- Ranked 1st among 43 B.Sc. students at the Department of Materials Science and Engineering of Shiraz University with an average of 18.38 out of 20, 2009.
- Ranked 2nd in the National Entrance Exam for graduate studies 2008 in Materials Science and Engineering among approximately 3800 B.Sc.
- Ranked 1nd among 11 M.Sc. students of Welding branch at the Department of Materials Science & Engineering of Sharif University of Technology, with an average of 17.91 out of 20, 2011.
- Ranked 1nd among 13 Ph.D students at the Department of Materials Science & Engineering of Sharif University of Technology, with an average of 18.51 out of 20.

ISI PUBLICATIONS

1. Khodabakhshi F., Kazeminezhad M., Kokabi A.H., *"Constrained Groove Pressing of Low Carbon Steel: Nano-structure and Mechanical Properties"*, Materials Science and Engineering: A, 2010;527(16):4043-4049.
2. Khodabakhshi F., Kazeminezhad M., Azarnush M., Miran S.H., *"Effect of Post Annealing Treatment on Nano-Structured Low Carbon Steel Sheets Processed by Constrained Groove Pressing"*, Materials Science Forum, 2010;667:1009-1014.
3. Khodabakhshi F., Maleksaeedi S., Paydar M.H., Saadat S., *"Influence of Autogenous Seeding on Densification and Microstructure in Processing of Gamma-Alumina Nanopowders"*, Phase Transitions, 2011;84:1-14.
4. Khodabakhshi F., Kazeminezhad M., *"The Effect of Constrained Groove Pressing on Grain Size, Dislocation Density and Electrical Resistivity of Low Carbon Steel"*, Materials and Design, 2011;32(6):3280-3286.
5. Khodabakhshi F., Kazeminezhad M., *"The Annealing Phenomena and Thermal Stability of Severely Deformed Steel Sheet"*, Materials Science and Engineering: A, 2011;528(15):5212-5218.
6. Khodabakhshi F., Kazeminezhad M., Kokabi A.H., *"Mechanical Properties and Microstructure of Resistance Spot Welded Severely Deformed Low Carbon Steel"*, Materials Science and Engineering: A, 2011;529:237-245.
7. Khodabakhshi F., Kazeminezhad M., Kokabi A.H., *"Resistance Spot Welding of Ultra-fine Grained Steel Sheets Produced by CGP: Optimization and Characterization"*, Materials Characterization, 2012;69:71-83.
8. Khodabakhshi F., Abbaszadeh M., Eskandari H., Mohebpour S.R., *"Application of CGP-Cross Route Process for Microstructure Refinement and Mechanical Properties Improvement in Steel Sheets"*, Journal of Manufacturing Processes, 2013;15(4):533-541.
9. Khodabakhshi F., Ghasemi Yazdabadi H., Kokabi A.H., Simchi, A., *"Friction Stir Welding of a P/M Al-Al_2O_3 Nanocomposite: Microstructure and Mechanical properties"*, Materials Science and Engineering: A, 2013;585:222-232.
10. Khodabakhshi F., Kazeminezhad M., *"Differential Scanning Calorimetry Study of Constrained Groove Pressed Low Carbon Steel: Recovery, Recrystallisation and Ferrite to Austenite Phase Transformation"*, Materials Science and Technology (United Kingdom), 2014;30(7):765-773.

11. Khodabakhshi F., Kazeminezhad M., Kokabi A.H., *"On the Failure Behavior of Highly Cold Worked Low Carbon Steel Resistance Spot Welds"*, Metallurgical and Materials Transaction A, 2014;45(3):1376-1389.

12. Khodabakhshi F., Simchi A., Kokabi A.H., Nosko M., Simanĉik F., Švec P., *"Microstructure and Texture Development During Friction Stir Processing of Al-Mg Alloy Sheets with TiO_2 Nanoparticles"*, Materials Science and Engineering: A, 2014;605:108-118.

13. Khodabakhshi F., Simchi A., Kokabi A.H., Nosko M., Švec P., *"Strain Rate Sensitivity, Work Hardening, and Fracture Behavior of an Al-Mg TiO_2 Nanocomposite Prepared by Friction Stir Processing"*, Metallurgical and Materials Transaction A, 2014;45(9):4073-4088.

14. Khodabakhshi F., Simchi A., Kokabi A.H., Gerlich A.P., Nosko M., *"Effects of Post-Annealing on the Microstructure and Mechanical Properties of Friction Stir Processed Al-Mg-TiO_2 Nanocomposites"*, Materials and Design, 2014;63:30-41.

15. Mehdizadeh M., Khodabakhshi F., *"An Investigation into Failure Analysis of Interfering Part of a Steam Turbine Journal Bearing"*, Case Studies in Engineering Failure Analysis, 2014;2(2):61-68.

16. Khodabakhshi F., Abbaszadeh M., Mohebpour S.R., Eskandari H., *"3D Finite Element Analysis and Experimental Validation of Constrained Groove Pressing–Cross Route as an SPD Process for Sheet Form Metals"*, The International Journal of Advanced Manufacturing Technology, 2014;73(9-12):1291-1305.

17. Khodabakhshi F., Simchi A., Kokabi A.H., Sadeghahmadi M., Gerlich A.P., *"Reactive Friction Stir Processing of AA5052-TiO_2 Nanocomposite: Process-Microstructure-Mechanical Characteristics"*, Materials Science and Technology (United Kingdom), 2015;31(4):426-435.

18. Khodabakhshi F., Haghshenas M., Sahraeinejad S., Chen J., Shalchi B., Li J., Gerlich A.P., *"Microstructure-Property Characterization of a Friction-Stir Welded Joint between AA5059 Aluminum Alloy and High Density Polyethylene"*, Materials Characterization, 2014;98:73-82.

19. Khodabakhshi F., Gerlich A.P., Simchi A., Kokabi A.H., *"Cryogenic Friction-Stir Processing of an Ultrafine-Grained Al-Mg-TiO_2 Nanocomposites"*, Materials Science and Engineering: A, 2015;620:471-482.

20. Khodabakhshi F., Gerlich A.P., Simchi A., Kokabi A.H., *"Hot Deformation Behavior of an Aluminum-Matrix Hybrid Nanocomposite Fabricated by Friction Stir Processing"*, Materials Science and Engineering: A, 2015;626:458-466.

21. Khodabakhshi F., Simchi A., Kokabi A.H., Švec P., Simanĉik F., *"Effects of Nanometric Inclusions on the Microstructural Characteristics and Strengthening of a Friction-Stir Processed Aluminum-Magnesium Alloy"*, Materials Characterization, 2015, Accepted Manuscript, In Press.

22. Khodabakhshi F., Haghshenas M., Eskandari H., Koohbor B., *"An Investigation to the Hardness- Strength Relationships in Ultra-Fine Grained Metals Processed through Severe Plastic Deformation"*, Journal of Materials Engineering and Performance, 2015, Under Consideration.

23. Khodabakhshi F., Kazeminezhad M., Kokabi A.H., "*Metallurgical characteristics and failure mode transition for dissimilar resistance spot welds between ultra-fine grained and coarse grained low carbon steel sheets*", Materials Science and Engineering: A, 2015, Under Consideration.

24. Khodabakhshi F., Simchi A., Kokabi A.H., Gerlich A.P., Nosko M., *"Effect of Stored Strain Energy on the Restoration Mechanisms and Texture Developments in an Aluminum-Magnesium Alloy during Friction Stir Processing"*, Scripta Materialia, 2015, Under Consideration.

25. Khodabakhshi F., Simchi A., Kokabi A.H., Nosko M., Švec P., Gerlich A.P., *"Microstructural and Mechanical Characteristics of Dissimilar Friction Stir Welds between PM Al-Al_2O_3-SiC Hybride Nanocomposite and Commercial Pure Aluminum"*, Acta Materialia, 2015, Under Consideration.

26. Khodabakhshi F., Simchi A., Kokabi A.H., *"Microstructural Evolutions and Mechanical Properties of an Al-Mg-Ti Intermetallic In-situ Nanocomposite Produced by Friction Stir Processing of AA5052 Alloy with Titanium Particles"*, Materials Science and Engineering: A, 2015, Under Consideration.

27. Khodabakhshi F., Simchi A., Kokabi A.H., Gerlich A.P., Nosko M., *"Functionally Graded Al-SiC Nanocomposites by Combining Powder Metallurgy and Friction Stir Processing Routes"*, Composite Science and Technology, 2015, Under Consideration.

28. Khodabakhshi F., Simchi A., Kokabi A.H., *"Wear and Mechanical Characteristics of FSP In-situ Al-Mg Metal Matrix Nanocomposites Reinforced via Al_3Ti and MgO Nanoparticles"*, Wear, 2015, Under Consideration.

BOOKS

- Kokabi A.H., Khodabakhshi F., Sarkari Khorrami M. (2015): Bimetals: Dissimilar Joints. Tehran. Sharif University Publications. 460 pp.

PROFESSIONAL PRESENTATIONS

- November 2014 ***8th Congress & 3rd International Engineering Materials & Metallurgy Conference*** Tehran, Iran
  ► *"Characterization of Al Matrix Nanocomposites Reinforced by In situ Al_3Ti and MgO Phases Produced via Reactive FSP of 5052Al-TiO_2 System"*

- February 2012 ***Steel Symposium 90*** Isfahan, Iran
  ► *"On the Optimization of Resistance Spot Welding Process for Joining of Nano-structured Steel Sheets"*

- March 2011 **The 5th International Conference on Nanomaterials by Severe Plastic Deformation (NanoSPD5)** Nanjing, China
  ► *"Effect of Post Annealing Treatment on Nano-Structured Low Carbon Steel Sheets Processed by Constrained Groove Pressing"*

- November 2010 **4th Joint Conference of Iranian Metallurgical Engineers Society and Iranian Foundry men's Society** Tehran, Iran
  ► *"The Effect of Large Pre-strain in Low Carbon Steel Sheets on Microstructure and Mechanical Properties of Resistance Spot Welds"*

- March 2010 ***Steel Symposium 88*** Yazd, Iran
  ► *"An Investigation into the Microstructure and Mechanical Properties of Low Carbon Steel Sheet after Severe Plastic Deformation in Corrugated Die"*

- November 2008 **2th Joint Conference of Iranian Metallurgical Engineers Society and Iranian Foundry men's Society** Karaj, Iran
  ► *"Fabrication of Alpha-Alumina Seeds from Initial Nano-gamma Powder to Enhance Densification of Alumina"*

- September 2008 **The 5th International Conference on Advanced Materials and Processing (ICAMP-5)** Harbin, China

► *"Microstructural Evolution and Enhanced Densification In Fabrication of Nano Gamma Alumina Powders by Autogenous Seeding"*

Teaching Experiences

- **Materials Science & Engineering Dept. of Shiraz University** (2005-2009)
  Teaching Assistant in *"Statics"*, (2006)
  Teaching Assistant in *"Mechanics of Materials"*, (2007)
  Teaching Assistant in *"Physical Chemistry"*, (2007)
  Teaching Assistant in *"Metal Forming II"*, (2008)
- **Materials Science & Engineering Dept. of Sharif University of Technology** (2011-2012)
  Teaching Assistant in *"Mechanics of Material"*, (2011)
  Instructor of *"Welding Lab"*, (2011-2012)
  Instructor of *"Welding Workshop"*, (2011-2012)
  Instructor of *"Advanced Welding Lab"*, (2012)

Selected Courses

- Advanced Welding and Joining Process
- Advanced Welding Metallurgy
- Design and Inspection of Weld
- Brazing and Soldering
- Measurement Errors
- Advanced Materials Analysis and Characterization
- Advanced Fracture Mechanics
- Advanced Mechanical Properties of Materials
- Nanocomposites
- Finite Element Modeling
- Simulation in Materials Science
- Aging in Metals and Alloys
- High Speed Forming
- Advanced Kinetics and Thermodynamics of Materials

Professional Experiences

- Part time working at Raazi Metallurgy Research Center (RMRC) of Iran for 4 months in the fields of failure analysis and life assessment (2014)
- Part time working at Niroo Research Institute (NRI) of Iran for 12 months in the fields of troubleshooting of Amirkabir's boilers for examining the overheating problems of super-heater boiler tubes (2012-2013)
- Part time working at Niroo Research Institute (NRI) of Iran for 10 months in the fields of online monitoring of the life assessment of super-heater and re-heater boiler tubes (2011-2012)
- Part time working at FARASAN Industrial Company of Iran for 6 months in the fields of production of fiber glass tubes for water transmission lines (2009-2010)

Professional Memberships and Activities

- Member of Iranian National Institute of Genius for 6 years.
- Member of Genius Students Society of Shiraz University for 4 years on B.Sc. studies.

- Member of Genius Students Society of Sharif University of Technology for 6 years on M.Sc. and Ph.D studies.

Research Interests

- Welding Metallurgy
- Metal Matrix Nanocomposites
- Ultrafine-Grained Metals
- Severe Plastic Deformation (Microstructure/Nano-structure/Mechanical Properties Modeling)
- Constrained Groove Pressing (CGP)
- Microstructure-Property Relationship
- Friction Stir Welding (FSW)
- Nano-composite Fabrication via Friction Stir Processing (FSP)
- Joining of Nano-structure and Nano-composite Materials
- Brazing and Soldering
- Simulation of Processes by ABAQUS
- Programming with MATLAB for Simulation of Manufacturing Routes

Computer Skills

- Simulation and Finite Element Analysis with ABAQUS Software
- Programming with MATLAB Software
- Basic Programming with Visual Basic
- AutoCAD (Professional)
- Mechanical Desktop
- Microsoft Office Programs
- Adobe Photoshop
- Adobe Premier
- Basic familiarity to computer hardware assembly

Languages

- Persian (My Native Language).
- English (Fluent)

Extra-Curricular Activities

- An Amateur Football Player.
- An Amateur Body Builder.
- Swimming
- Aerobic

Reference

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Prof. Mohsen Kazeminezhad
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Prof. Adrian P. Gerlich
Associate Professor
NSERC/TransCanada Industrial Research Chair in Welding for Energy Infrastructure
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