Curriculum Vitae

Personal Information

Name: Hossein Talebi Qadikolaei

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Position: Faculty Member, University of Kashan (Department of Manufacturing and Production Engineering)

Address: Faculty of Mechanical Engineering, University of Kashan, Qotb Ravandi Blvd., Kashan, Iran

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Education

Ph.D. in Mechanical Engineering – Manufacturing and Production, Tarbiat Modares University, 2019 (GPA: 19.26/20)

M.Sc. in Mechanical Engineering – Manufacturing and Production, Tarbiat Modares University, 2016

B.Sc. in Mechanical Engineering, University of Kashan, 2013

Research Interests

• Dynamic (high strain rate) and quasi-static behavior analysis of metallic sheets at ambient and elevated temperatures

• Development and analysis of manufacturing processes, metal forming, and plasticity

• Instability analysis, distortion, and ductile fracture in metals

• Deformation mechanics

• Programming computational-analytical plugins in commercial software for process analysis, design, and finite element modeling

• Renewable energy (PEM fuel cells / fabrication of bipolar plates)

• 3D metal printing and composite manufacturing

• Mechanical behavior and fracture of 3D-printed parts, forming processes (bulk, sheet), machining, and joining of materials

Research and Industrial Projects

• Development of an experimental/theoretical method for the prediction of ductile fracture in roll forming processes (Joint Iran-Russia Project, supported by RFBR & INSF)

• Characterization of static and dynamic properties of metallic sheets and calibration of strain-rate-dependent ductile fracture model (with Niroo Va Sanat Development Co.)

• Deformation analysis of advanced naval vessel structures under high temperature (Laser beam, with Northern Research Institute)

• Production of metallic bipolar plates (with Northern Research Institute)

• Fabrication of industrial-scale graphite bipolar plates for PEM fuel cells (with Northern Research Institute)

• Roll forming of steel coiled tubing for oil industry (with ACECR)

• Dynamic deformation behavior of metallic and plastic materials at high strain rates (with IKCO - Jetco)

• Experimental and analytical investigation of mechanical properties and fatigue life prediction of automotive metallic sheets (with IKCO - Jetco)

Honors and Awards

• Member of National Elites Foundation

• Winner of Specialized Military Service Award, National Elites Foundation

• Outstanding Researcher, University of Kashan

• Researcher with highest impact factor publications, University of Kashan

• Best Ph.D. Dissertation Award, Tarbiat Modares University (2019)

• Invited Speaker at 15th International Green Energy Conference, University of Glasgow, UK

• Best Dissertation Award, 17th National & 6th International Conference on Manufacturing Engineering, Iran

• Ranked 1st in Ph.D. program, Tarbiat Modares University

• Ranked 3rd in Ph.D. entrance exam (2015)

• Ranked 1st in M.Sc. graduation

• Top 10% student in B.Sc. program

• Member of Iranian Society of Manufacturing Engineering

Teaching Experience

• Heat Treatment – University of Kashan

• Measurement Systems Laboratory – University of Kashan

• Engineering Drawing I & II – University of Kashan

• Metallurgy in Manufacturing – University of Kashan

• Non-Destructive Testing – University of Kashan

• Measurement Physics – University of Kashan

• Fixture Design – University of Kashan

Supervision (Advisor/Co-advisor)

• Ph.D.: Theoretical and experimental investigation of ductile fracture in square tube bending at room and elevated temperatures – Advisor – University of Kashan

• M.Sc.: Investigation of dynamic fracture behavior of 3D printed parts using ductile fracture criteria – Advisor – University of Kashan

• M.Sc.: Experimental and numerical study of mechanical properties of roll bonded sheets – Advisor – University of Kashan

• M.Sc.: Experimental and numerical study of ductile fracture in hydroforming of metallic bipolar plates – Advisor – University of Kashan

• M.Sc.: Prediction of failure in high strength steels during sheet bending using modified Mohr-Coulomb criterion – Co-advisor – University of Hormozgan

• Ph.D.: Experimental and numerical investigation of spring-back in cold roll forming of slit steel profiles – Co-advisor – Tarbiat Modares University

• M.Sc.: Experimental and numerical study of spring-back in cold roll forming of slit steel profiles – Co-advisor – Tarbiat Modares University

• Ph.D.: Experimental, numerical and analytical study of twisting defect in roll forming of asymmetric perforated profiles – Co-advisor – Tarbiat Modares University

• Ph.D.: Theoretical and numerical study of residual stresses in re-formed thick-walled square tubes – Co-advisor – Tarbiat Modares University

• Ph.D.: Experimental and numerical investigation of forming limits in flexible roll forming based on ductile fracture criteria – Co-advisor – Tarbiat Modares University

Theses

• B.Sc. (2013): Investigation of metal hydride tanks for hydrogen storage – Supervisor: Dr. Hamid Gorji

• M.Sc. (2016): Experimental and FEM simulation of rubber layer properties in rubber pad forming of metallic bipolar plates – Supervisor: Dr. Majid Eliasi

• Ph.D. (2019): Experimental and numerical analysis of ductile fracture in roll forming of symmetric profiles – Supervisor: Prof. Hassan Moslemi Naeini

Competitions

2013 – 1st place, First Fuel Cell Vehicle Competition, K. N. Toosi University of Technology, Tehran, Iran.

Publications

Book Chapter

Talebi, H. (2022). The Effect of Rubber Hardness on the Channel Depth of the Metallic Bipolar Plates Fabricated by Rubber Pad Forming. In: Materials Design and Applications IV. Springer.

Journal and Conference Papers (Selected)

1. Investigation of dimensional accuracy of metallic bipolar plate's micro channel in rubber pad forming process — Modares Mechanical Engineering (2016)
2. Investigation of the effect of rubber layers thickness on forming of bipolar plate's micro channels in rubber pad forming process — Iranian Journal of Manufacturing Engineering (2016)
3. Fabrication of metallic bipolar plates in PEM fuel cells using Semi-Stamp rubber forming process — Advanced Manufacturing and Process (2017)
4. Experimental investigation of Fracture in rubber pad forming of bipolar plate's micro channels — Procedia Engineering (2017)
5. Evaluation of Effective Parameters on Stamping of Metallic Bipolar Plates — Procedia Engineering (2017)
6. Investigation of dimensional accuracy in forming of metallic bipolar plates with serpentine flow field — Advanced Manufacturing and Process (2018)
7. Experimental and Numerical Investigation of Failure during Bending of AA6061 Aluminum Alloy Sheet Using the Modified Mohr-Coulomb Fracture Criterion — Advanced Manufacturing and Process (2019)
8. Fracture Analysis on U-Bending of AA6061 Aluminum Alloy Sheet Using Phenomenological Ductile Fracture Criteria — Thin-Walled Structures (2020)
9. Investigation of Failure during Rubber Pad Forming of Metallic Bipolar Plates — Thin-Walled Structures (2020)

10. Modeling of ductile damage evolution in roll forming of U-channel sections — Journal of Materials Processing Technology (2020)
11. Ductile Fracture Prediction of AA6061-T6 in Roll Forming Process — Mechanics of Materials (2020)
12. Study of the Effect of Calibration Procedure on the Accuracy of the Phenomenological Ductile Fracture Criteria in Sheet Metal Forming — Journal of Solid and Fluid Mechanics (2020)
13. Numerical and Experimental Study on Guillotine Shearing of a Complex Profile Produced by Roll Forming Process — Journal of Solid and Fluid Mechanics (2019)
14. Numerical Investigation of Bending Angle and Entropy Generation in Laser Forming of High Strength Steel — Journal of Solid and Fluid Mechanics (2019)
15. Fracture prediction in stamping of titanium bipolar plate for PEM fuel cells — International Journal of Hydrogen Energy (2021)
16. Experimental and Numerical Investigation of the Plastic Deformation of Metallic Bipolar Plates with Serpentine Flow Field — Amirkabir Journal of Mechanical Engineering (2021)
17. Integration of design of experiment and finite element method for the study of geometrical parameters in metallic bipolar plates for PEMFCs — International Journal of Hydrogen Energy (2021)
18. Selection of Appropriate Ductile Fracture Criterion to Predict Failure of Folded Cross Section Profiles in Reshaping Process — Iranian Journal of Manufacturing Engineering (2021)
19. Fabrication of metallic bipolar plates in PEM fuel cell using semi-stamp rubber forming process — Iranian Journal of Hydrogen & Fuel Cell (2022)
20. Numerical and Experimental Investigation of Fracture in Roll Forming Process using Lou-Huh Fracture Criteria — Arabian Journal for Science and Engineering (2022)
21. Predictive modeling of damage evolution and ductile fracture in bending process — Materials Today Communications (2022)
22. Experimental-Numerical Analysis of Ductile Damage Modeling of Aluminum Alloy Using a Hybrid Approach: Ductile Fracture Criteria and Adaptive Neural-Fuzzy System (ANFIS) — International Journal of Modelling and Simulation (2022)
23. Multi-attribute decision-making of process parameters in the fabrication of metallic bipolar plate using TOPSIS approach — International Journal of Hydrogen Energy (2022)
24. Numerical-experimental study on the thickness distribution of metallic bipolar plates for PEM fuel cells — Numerical-experimental study (2022)
25. Feasibility of forming U-shaped microchannels by the flexible-die forming process — Karafan Quarterly Scientific Journal (2022)
26. The study of forming of steel cups using hydrodynamic deep drawing process — Iranian Journal of Manufacturing Engineering (2022)
27. Investigation of deformation mechanics and forming limit of thin-walled metallic bipolar plates — International Journal of Hydrogen Energy (2023)
28. Investigating the effect of heat treatment in hydraulic rotary draw bending of AA6063 tubes — Modares Mechanical Engineering (2023)

29. Numerical-experimental investigation of using rubber blank holder on wrinkling of metallic bipolar plates formed by stamping process — International Journal of Hydrogen Energy (2023)
30. Study of the forming process effects on the wrinkling and thinning percentage of the micro-channels with serpentine layout — Hydrogen, Fuel Cell & Energy Storage (2023)
31. A study on spring-back of pre-punched profiles in cold roll forming process — Karafan Quarterly Scientific Journal (2023)
32. Investigation of process parameters of the hydrodynamic deep drawing assisted by radial pressure using Taguchi and finite element methods — Iranian Journal of Manufacturing Engineering (2023)
33. Investigation of the effect of process parameters in sheet hydroforming process — International Journal on Interactive Design and Manufacturing (IJIDeM) (2023)
34. Numerical And Experimental Investigation Of Twisting Defect Of Symmetrical Channel Section With Asymmetrical Holes Formed By Cold Roll Forming — Modares Mechanical Engineering (2023)
35. Effect of anisotropy on spring-back of pre-punched profiles in cold roll forming process: an experimental and numerical investigation — The International Journal of Advanced Manufacturing Technology (2023)
36. Experimental investigation and numerical simulation of the effect of type of bending die on the quality of tube forming in rotary draw bending process — Journal of Lightweight Materials and Manufacture (2023)
37. The effect of aging heat treatment on the formability and microstructure of the AA6063 tube in the rotary draw bending process — Journal of Engineering Research (2023)
38. The use of MCDM techniques to assess fluid pressure on the bending quality of AA6063 heat-treated tubes — Journal of Engineering Research (2023)
39. Investigating the Effect of Flexible Forming Process Variables on the Uniformity of Thickness Distribution in U-Shaped Micro-channels — Iranian Journal of Manufacturing Engineering (2023)
40. Characterization and Prediction of Micro Channel Depth of Ultra-Thin Bipolar Plates for PEMFCs — Journal of Engineering Research (2023)
41. Bending behavior of rectangular cross-section tube considering internal fluid pressure effects — Journal of Science and Technology, Transactions of Mechanical Engineering (2023)
42. Formability Study in Roll Forming Process: Insights into the Influence of Process Parameters on Damage Distribution — Journal Of Applied and Computational Sciences in Mechanics (2023)
43. Exploring Microchannel Forming of Bipolar Plate Considering the Impact of Microchannel Quantity — Journal Of Applied and Computational Sciences in Mechanics (Under review) (2023)
44. Comparing Isothermal and Non-Isothermal Stamping of Stainless-Steel Sheets for PEM Fuel Cell Bipolar Plates: An Experimental Study — International Journal of Hydrogen Energy (Under review) (2023)

45. Selection of optimum performance conditions in the laser-assisted turning of AISI 4340 hardened steel through the coupling of entropy/MCDM analysis — International Journal on Interactive Design and Manufacturing (2024)
46. Predictive modeling of spring-back in pre-punched sheet roll forming using machine learning — The Journal of Strain Analysis for Engineering Design (2024)
47. Insights into spring-back prediction: a comparative analysis of constitutive models for perforated U-shaped roll-formed steel profiles — The International Journal of Advanced Manufacturing Technology (2024)
48. Determination of dynamic plastic deformation behavior of DP 590 steel — Iranian Journal of Manufacturing Engineering (2024)
49. Experimental investigation and Numerical simulation of bending parameters on the spring back of the tube in the rotational bending process — Journal Of Applied and Computational Sciences in Mechanics (2024)
50. Optimal geometry selection for the microchannel in bipolar plates of PEM fuel cells from a multi-criteria decision analysis point of view — International Journal on Interactive Design and Manufacturing (2024)
51. Investigating the effect of polyurethane foam filling on the energy absorption of hybrid tubes with different thickness of composite layer — Iranian Journal of Manufacturing Engineering (2024)
52. Hydro-mechanical deep drawing of conical components: wrinkling behavior and process enhancement — Journal of Engineering Research (2024)
53. Multiple criteria decision support analysis for manufacturing process parameters selection of metallic bipolar plates for polymer electrolyte membrane fuel cells — Proceedings of the Institution of Mechanical Engineers, Part L (2024)
54. Numerical and experimental study of energy absorption in multilayer tubes manufactured through spinning forming process under quasi-static axial loading — Alexandria Engineering Journal (2024)
55. Prediction and optimization of strain homogeneity in PTCAP process using ANFIS, ANN, and Taguchi approaches — International Journal on Interactive Design and Manufacturing (2025)
56. Evaluation of constitutive modeling for dynamic Plastic-Fracture modeling of Dual Phase (DP590) steel sheets — Journal of Materials Research and Technology (2025)

Memberships

- Member, Iranian Society of Manufacturing Engineering
- Member, National Elites Foundation