

Saeed Rahnama



BirthDay: 22/09/1981
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Current Position: 2012-Present
Assistant professor in Mechanical Engineering, Department of Mechanical Engineering, Faculty of Engineering, University of Birjand, Iran.
My major responsibilities are both **teaching for Bachelor, Master and PhD. students**, including Composite materials, Mechanics of Materials, Energy Methods and Fracture mechanics, and **researching including different aspects of Composite Materials and Adhesive Joints**.

Education:

2007-2012 Ph.D. in Mechanical Engineering, Department of Mechanical Engineering, Ferdowsi University of Mashhad, Mashhad, Iran.
Thesis: Development of Statistical Modeling of Crack Growth in Ti-6Al-4V Microstructure, Supervisor: Professor Khalil Farhangdoost.

2003-2006 M.S. in Mechanical Engineering, Department of Mechanical Engineering, Ferdowsi University of Mashhad, Mashhad, Iran.
Thesis: Shape Control of Structural Element with Piezoelectric Patches, Supervisor: Professor Jalil Rezaeepazhand.

1999-2003 B.S. in Mechanical Engineering, Faculty of Mechanical Engineering, Iran University of Science and Technology, Tehran, Iran.
Project: Design of Composite Frame of Bicycle, Supervisor: Professor Mahmood Shokrieh.

Domains of Expertise:

- Solid mechanics
- Composite materials
- Adhesive joints
- Smart materials

Research Interests:

- Stress analysis and life prediction in composite materials and adhesive joints.
- Composite Structures (Repair, Cutout, Stability, Simulation).
- Design of lightweight and aircraft structures.
- Smart structures, use smart materials in structures as an actuator/a sensor (ER Fluid, Piezoelectric, IPMC).
- Progressive damage analysis in laminate structures and study on delamination and other defects in composite structures.
- Composite manufacturing methods.
- Structural stability (Aeroelastic Stability, Static and Dynamic Buckling).

Honors and Awards:

- Grade (A) in PhD Entrance Exam of Ferdowsi University of Mashhad.

Technical Skills:

- FEM and XFEM
- DoE (Design of Experiments)
- Composite manufacturing methods (Hand layup, RTM, Filament Winding, Pultrusion, BMC, SMC)
- Lab skills: Fatigue, Fracture, Tensile and Buckling Standard Test Procedure.
- Program and Software
 - ANSYS
 - ABAQUS
 - MATLA
 - MAPLE

Teaching Experience:

Undergraduate Courses

- Statics for BS students (10 years)
- Mechanics of Materials for BS students (10 years)
- Mechanical vibrations for BS students (7 years)
- Cinematics and Dynamics of Machines for BS students (7 years)
- Composite materials for BS students (2 years)

Graduate Courses

- Advanced engineering mathematics for MS students (4 years)
- Advanced mechanics of composite materials for MS students and Ph.D. students (5 years)

- Advanced mechanics of materials for MS students and Ph.D. students (3 years)
- Energy Methods and Calculus of Variations for Ph.D. students (5 years)

Administrative Experience:

- Director of Brilliant Talent Office of University of Birjand (2014-present)
- Media Advisor to the President of the University of Birjand (2014-present)

Languages:

- English

List of Publications:

- 1- Kh. Farhangdoost, S. Rahnama, **A Comparison of Macroscopic Fracture Surface and Crack Growth Rate of Ti-6Al-4V**, Advanced Materials Research Vols. 97-101, pp 687-690, 2010.
- 2- S. Rahnama, kh. Farhangdoost, **Random tessellation and its application in mechanics of microstructures**, Journal of Solid and Fluid Mechanics, Vol. 1, No. 1, pp. 11-22, 2011 (in Persian).
- 3- Kh. Farhangdoost, S. Rahnama, **Developed Random Tessellation for Modeling of Microstructure**, Key Engineering Materials Vols. 488-489, pp 529-532, 2012.
- 4- S. M. Safi, H. Amirabadi, I. Lirabi, Kh. Khalili, S. Rahnama, **A new Approach for Chatter Prediction in Robotic milling Based on Signal Processing in Time domain**, Applied Mechanics and Materials Vol. 346, pp 45-51, 2013.
- 5- Kh. Farhangdoost, S. Rahnama, **Special criterion for crack path prediction at micro-structural scale based on dominate slip system and grain boundary**, International Journal of Fatigue 69, pp 49-62, 2014.
- 6- S. Rahnama, M. maleki, **An investigation on the stress concentration factor in unidirectional composite lamina with angled and staggered crack**, Modares Mechanical Engineering, Vol. 15, No. 12, pp. 472-480, 2015 (in Persian).
- 7- N. Valipour Motlagha, R. Khania, S. Rahnama, **Super dewetting surfaces: Focusing on their design and fabrication methods**, Colloids and Surfaces A: Physicochemical and Engineering Aspects 484, pp 528-546, 2015.
- 8- S. Rahnama, F. Fatehi Sichani, M. Raghebi, **Investigation of wire drawing parameters on interlayer pressure at Copper clad Aluminum wire**, Modares Mechanical Engineering, Vol. 16, No. 4, pp. 99-108, 2016 (in Persian).
- 9- A. Kariman Moghadam, S. Rahnama, S. Maleki, **Experimental and numerical investigation of crack growth in adhesive bonding of two composites plates under mode I**, Modares Mechanical Engineering, Vol. 16, No. 5, pp. 271-280, 2016 (in Persian).
- 10- M. Raghebi, F. Fatehi Sichani, S. Rahnama, **Experimental and numerical investigation on interlayer pressure at bimetallic Copper clad Aluminum wire drawing**, Modares Mechanical Engineering, Vol. 17, No. 1, pp. 253-262, 2017 (in Persian).
- 11- S. Jafari Kalkan, S. Rahnama, **Numerical study of energy absorption in composite sandwich structures under low velocity impact**, Journal of Solid and Fluid Mechanics, Vol. 7, No. 1, pp. 51-64, 2017 (in Persian).
- 12- A. Kariman Moghadam, S. Rahnama, S. Maleki, **Analysis of Crack growth Adhesive Joint by Extended Finite Element Method and Comparison with Experimental results**, Tabriz Mechanical Engineering, Vol. 47, No. 1, pp. 209-218, 2017 (in Persian).
- 13- E. Shahbeiki E, F. Fatehi Sichani F., S. Rahnama, **Investigation of Bonding Strength of Steel/Stainless Steel Bimetallic Rod**, Modares Mechanical Engineering, Vol 19, No. 1, pp. 105-113, 2019 (in Persian).
- 14- S. A. Sajjadi, S. Rahnama, M. Lotfi, R. Nosouhi, **Numerical Analysis of Delamination Buckling in Composite Cylindrical Shell under Uniform External Pressure: Cohesive Element Method**, Journal of Modern Processes in Manufacturing and Production, Vol. 6, No. 3, pp. 87-106, 2017
- 15- Saeed Rahnama, Roham Rafiee, Mehdi Maleki, **The influence of hygrothermal environments on the stress concentration in unidirectional composite lamina**, Mechanics of Materials, Vol. 129 (2019), pp 332-340.

Some Contribution to International and National Congresses and Conferences:

- 1- J. Rezayee Pazhand, S. Rahnama, **Using equivalent load in analysis of behavior of the column with the piezoelectric layer**, 2nd Conference of the thin wall structures, November 2005, Kerman, Iran.
- 2- S. Rahnama, J. Rezayee Pazhand, **Buckling of the smart column with the piezoelectric layer**, 6rd National Conference on Iranian Aerospace Society, March 2007, Tehran, Iran.
- 3- J.Rezaeepazhand, S.Rahnama, **Buckling of Smart Columns with Piezoelectric Patches**, ACCM-5, November 2006, Hong Kong.
- 4- Kh. Farhangdoost, S. Rahnama, **Simulation of Random Microstructure and Study its effects on Scatter of Stress Intensity Range Factor Data**, August 2012, Toronto, Canada.
- 5- S. Rahnama, V. Shahabi, M. Nezamdoost, **Using UMAT for modeling of functionally graded materials and Study of stress field around flaws**, The 3rd International Conference on Composites: Characterization, Fabrication and Application (CCFA-3), December 2012, Tehran, Iran.
- 6- S. Rahnama, M. H. Ahmadi Motaghi, M. Vahidniya, **Effect of mold diamete in the Cyclic Extrusion Compression process on**

the flow and strain, National conference on Mechanical Engineering, May 2013, Malayer, Iran.

- 7- S. Rahnama, E. Esmaealzade, **Analysis of the openness of the filament winding pipes under compression loading by FEM**, 2nd international conference and 7th joint conference of Iranian Metallurgical Society, November 2013, Semnan, Iran.
- 8- S. Rahnama, R. Alimohamadi, S. Maleki, **Investigation into the Effect of Delamination Primary Size and Shape on Stiffness of Composite Pipes**, 1st International conference on composite pipes, vessels & tanks, January 2015, Tehran, Iran.
- 9- S. Rahnama, A. Sajjadi, **Examination of Delamination Growth in Composite Cylindrical Shells under Uniform External Pressure**, 1st International conference on composite pipes, vessels & tanks, January 2015, Tehran, Iran.
- 10- S. Rahnama, R. Sarayloo, **Investigation of Effect of Delamination on Buckling Load in Composite pipes with Sandwich Structure**, 1st International conference on composite pipes, vessels & tanks, January 2015, Tehran, Iran.
- 11- S. Rahnama, R. Alimohammadi, **Investigation of the effect of the delamination on the stiffness parameter of composite pipes by using cohesive elements**, 23rd International Mechanical Engineering Conference, April 2015, Tehran, Iran.
- 12- A. Kariman Moghadam, S. Rahnama, S. Maleki, **Modeling crack growth in the joint region of two composite plates by XFEM**, 3rd National and First International Conference in applied research on Electrical, Mechanical and Mechatronics Engineering, February 2016, Tehran, Iran.
- 13- S. Jafari Kalkan, R. Sarayloo, S. Rahnama, **Effect of delamination and its growth in reinforced structure by shell element by FEM**, 24rd International Mechanical Engineering Conference, April 2016, Yazd, Iran.
- 14- S. Rahnama, R. Gholami, **Investigating the Response of Polymer Based Composites to Unidirectional Tension Thermal MoistureAnalogy**, The 5th International Conference on Composites Characterization Fabrication and Application, December 2016, Tehran, Iran.
- 15- R. Gholami, S. Rahnama, N. Yari, **Investigating the Effect of Moisture Diffusion on Composite Beam under Impact**, the 5th International Conference on Composites Characterization Fabrication and Application, December 2016, Tehran, Iran.
- 16- S. Jafari Kalkan, S. Rahnama, **Comparison between energy absorption ability of reinforced sandwich bumper with composite laminate and not reinforced bumper**, Conference on application of composite in Industries of Iran, January 2017, Tehran, Iran.
- 17- M. Safari, M. Raghebi, S. Rahnama, **analysis of free vibration of composite conical shells by using numerical Method and The Spline approximation function**, Conference on application of composite in Industries of Iran, January 2017, Tehran, Iran.
- 18- S. Rahnama, S. Jafari Kalkan, R. Saraylu, **Buckling Analysis of the Composite Plates with Delamination and Growth of Delamination with CZM Method**, International Research in Mechanical Engineering, December 2016, Singapore, Singapore.
- 19- S. Rahnama, S. Jafari Kalkan, R. Saraylu, **Buckling Behavior and Compressive Failure of Composite Laminates Containing Multiple Large Delaminations Growth with Cohesive Element Method**, International Research in Mechanical Engineering, December 2016, Singapore, Singapore.
- 20- A. Kariman Moghadam, S. Rahnama, **Experimental study of effect of initial crack length change at composite adhesive joint in fracture mode I and II**, 25rd International Mechanical Engineering Conference, April 2017, Tehran, Iran.
- 21- M. Maleki, S. Rahnama, **Analytical assessment of the hydrothermal effects on the stress distribution in composite materials**, 26rd International Mechanical Engineering Conference, April 2018, Semnan, Iran.
- 22- S. Gholami Moghadam, S. Rahnama, **The effect of statistical distribution of fiber array on mechanical behavior of unidirectional composite under tensile and thermal loading**, 26rd International Mechanical Engineering Conference, April 2018, Semnan, Iran.
- 23- A. Dadian, S. Rahnama, A. Zolfaghari, **Strength Improvement of Composite-Steel Lap Joint by Reverse Step and Grading the Overlap with Fiber**, The 6th International Conference on Composites: Characterization Fabrication and Application, December 2018, Tehran, Iran.
- 24- M. Maleki, S. Rahnama, R. Rafiee, **Micromechanical finite element modeling of moisture diffusion in unidirectional composite materials**, The 6th International Conference on Composites: Characterization Fabrication and Application, December 2018, Tehran, Iran.
- 25- M. Yousefi, S. Rahnama, M. Farhadi Nia, **A numerical analysis of torsion load capacity in hybrid tubular joints between composite to metal under pure torsion**, The 6th International Conference on Composites: Characterization Fabrication and Application, December 2018, Tehran, Iran.

**Research Project:
2016-Present**

Experimental study of fracture surface characteristics of inhomogeneous drop weight test specimen made from API X65, By: Mostafa Taazimi, Ph.D. thesis, in process, (As Supervisor).

Experimental and numerical investigation of the influence of Cu clad Al wire drawing parameters on interlayer bonding strength and ductility of Cu clad layer, By: Fariborz Fatehi Sichani, Ph.D. thesis, in process, (As Supervisor).

Experimental and numerical investigation of the effects of hydrothermal and mechanical loads strength of E-glass/Epoxy composite pipes, By: Mahdi Maleki, Ph.D. thesis, in process, (As Supervisor).

Experimental and numerical study of the effect of torsion loading on the mechanical behavior of composite to aluminum hybrid joints used in aerospace structures, By: Moheyddin Yusefi, Ph.D. thesis, in process, (As Supervisor).

Experimental and numerical study on strength of functionally graded adhesive, bolted and hybrid composite-aluminum lap joint, By: Alireza Dadiyan Ahangar, Ph.D. thesis, in process, (As Supervisor).

Application of Finite Element Method and Acoustic Emission Analysis to Investigate Experimentally Failure Mechanisms in Glass Epoxy Composite under Quasi Static and Cyclic Loading, By: Navid Nureddin, Ph.D. thesis, in process, (As Advisor).

Buckling analysis on a quadrilateral sheet of composite glass/ epoxy reinforced with nanomaterials, By: MohmadAli Khodadai, MS thesis, Finished: 2018/09/12, (As Supervisor).

Investigation of strength of composite-aluminum single lap adhesive joint under uniaxial tensile load, By: Najme Yari, MS thesis, Finished: 2018/09/22, (As Supervisor).

Investigation and prediction of fatigue life of composite laminates based on progressive damage, By: Aref Abdipur, MS thesis, in process, (As Supervisor).

Simulation of the fracture behavior of steel electron beam welded joint by cohesive zone model, By: Naeem Nazri, MS thesis, in process, (As Supervisor).

Simulation of Gas Tungsten Arc Welding of Thin Sections Copper Coating of Copper-Aluminum Composite Wire, By: Morteza Zeynabi, MS thesis, Finished: 2017/01/26, (As Supervisor).

Free Vibration Analysis of Laminated Composite Conical Shells Using Spline Collocation Method, By: Mehran Safari, MS thesis, Finished: 2017/01/26, (As Supervisor).

2015-2016

Numerical Study of Energy Absorption in Composite Sandwich Structures, By: Saman Jafari Kalkan, MS thesis, Finished: 2016/11/12, (As Supervisor).

Study of Fiber Array Effect on Mechanical Properties of Unidirectional Composite Using Finite Element Method, By: Soroush Gholami Moghadam, MS thesis, Finished: 2016/09/21, (As Supervisor).

Optimization of Stiffening Rings of Air-Cooled Condenser Steam Duct, By: Aliye Miri Friz, MS thesis, Finished: 2016/09/21, (As Supervisor).

Analysis of Crack Growth and Failure in Composite by Extended Finite Element Method, MS thesis, By: Amir kariman Moghadam, Finished: 2016/02/07, (As Supervisor).

Investigation of Delamination Effect on Response of Sandwich Panel Structure Columns Reinforced by Composite, MS thesis, By: Reza Sarayloo, Finished: 2016/01/28, (As Supervisor).

The Investigation of FGM Properties for Improving Disk Brake Performance, By: Milad Golmohamadi, MS thesis, Finished 2015/10/20, (As Supervisor).

2012-2015

Determination of Critical Crack length in the Ship's Propeller Shaft, By: Alireza MahdaviFar, MS thesis, Finished 2015/02/04, (As Supervisor).

Investigation into the Effect of Delamination on Composite Pipes Stiffness, By: Ramin Alimohamadi, MS thesis, Finished 2014/12/15, (As Supervisor).

2010-2012

Development of Statistical Modeling of Crack Growth in Ti-6Al-4V Microstructure, PhD Thesis, Finished: 2012/06/07

2005-2006

Shape Control of Structural Element with Piezoelectric Patches, MS Thesis, Finished: 2006/02/04

2002-2003

Design of Composite Frame of Bicycle, BS Project, Finished: 2003/09/06