Hossein Hosseini-Toudeshky Curriculum Vitae June. 2021

Male, Date of Birth: 1963

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Professor of

Structural Integrity, Material Design and Life Assessment

H-Index (Google Scholar): 34

Faculty member of

Amirkabir University of Technology (Tehran Polytechnic) since March 1997, Tehran, Iran

Educations:

PhD: Mechanical Engineering (Applied Mechanics), 1992-1996
PhD thesis: "Creep Life Assessments of Components Containing Stress Concentrators under Uniform Loading and Temperatures"
University of New South Wales, Sydney, Australia

MSc: Mechanical Engineering (Applied Mechanics), 1987-1990
MSc thesis: "Design of a Cartesian industrial robot"
Isfahan University of Technology, Isfahan, Iran

BSc: Mechanical Engineering (Applied Mechanics), 1983-1987
Isfahan University of Technology, Isfahan, Iran

Research Interests:

- Structural Integrity, Life Assessment and Life Extension of Components
- Material Characterization, Advanced Composites and Multiphase Materials
- Material Design and Meta-Material with Specific Behavior and Applications
- Damage and Fatigue behavior of 3D Printing and Fast Prototyping components
- Composite Repair of Metallic Structures, Panels and Pipes
- Fiber Metal Laminates and Metal/Composite Joints

- Creep, Fatigue and Fracture Mechanics
- Nonlinear Computational Mechanics (FEM, XFEM and Meshless)
- Progressive Damage Analyses, Continuum Damage Mechanics & Cohesive Zone Modeling (Composites, FMLs & Multiphase Materials)
- Micromechanics and Multiscale Modelling
- Peridynamics Method in Various Applications

Research Experiences and Vision Statements

Integrity and life assessment of components under various loadings and environmental conditions and material characterization using computational and experimental methods are his major interest. His activities in this area were initially started with creep life assessments of 2D, axisymmetric, and 3D components by his own developed FEM software and development of a new simple method during his PhD theses in the university of New South Wales, Australia. But to respond other requirements of material design and characterization, integrity and life assessment, and progressive damage analyses he extended his research field to fatigue, fracture and damage of metallic and composite materials as well.

Creep Analyses and Creep Life Assessment for welded and adhesive parts

he performed creep tension tests for kind of polymer resin used in composite blades of wind turbine at low temperature. Creep tests were also performed for composite/metal interface to develop a new Creep Cohesive Zone Model formulation.

Performing progressive creep damage analyses and creep life prediction for a complex 3D component (intersection of a cylinder and pipe) considering base material, weld material and heat affected zone. Also, performing progressive creep-fatigue damage analyses for 2D and 3D components.

Design of Adhesive Joints, Composite Repair and Fatigue Life Extension

Performing many researches on fatigue life assessment of cracked metallic components using both experimental and FEM analyses. Investigating the effects of various parameters on fatigue crack growth of repaired panels containing cracks in mode-I and general mixed mode conditions.

Fatigue life extension of cracked metallic components, stiffened panels and pipes using various composite repairs, 3D crack trajectory and real crack-front modelling, effects of thermal residual stresses due to the curing cycles on fatigue life extension of repaired components using both experimental and numerical methods and suggestion for industries to reduce these effects on fatigue life extension, development of a simple method, and comprehensive progressive damage analyses considering damage in composite repair, bonding and material plasticity of repaired components.

Development of a fatigue life assessment code for crack-free and cracked components, stiffened panels and repaired panels using both semi analytical and FE methods.

Sandwich Panels with FML and composite face sheets

Performing comprehensive experimental and numerical investigations for progressive damage analyses of sandwich panels with polymer foam core and different FML and composite face sheets under out of plane static and low cycle fatigue loading conditions. Consideration of concurrent plastic deformation of metal parts of the face sheets, delamination of FML layers, interface of FML and foam core, and the hyper elasticity of the core material in progressive damage analyses. Performing various experiments for material characterization and static and LCF experiments were also performed to verify the predicted results.

Multiscale modeling and progressive damage analyses,

Development of various continuum damage mechanics approaches, micromechanical modelling and multiscale modellings using both the home developed software and added necessary subroutines to the available commercial FEM software. Performing many experiments for composites for material characterizations and verification of the computational results. Performing micro-mechanical modellings for both composites and multiphase metals under static and cyclic loadings.

To overcome the challenge of interface modelling in composites, FMLs, hybrid material, and dual phase steels, CZM with various formulations have been used in progressive damage analyses under various types of loadings (static tension and compression, high cycle fatigue, low cycle fatigue, low velocity impact and cyclic compression buckling). Experiments were also performed for material characterizations of CZMs and verifications. Specific user material and user elements subroutines added to the available commercial FEM software.

Composite Damage and Design of Hybrid Composites

Composite material and multiphase metals characteristics such as strength, life and damage mechanisms performed through the multiscale modelling and progressive damage analyses under static and cyclic loadings. Various experimental works have been also performed for necessary material characterizations and verification of the predicted results. Development of different micro-mechanical modellings for composites. Micromechanical modelling of dual phase steels using the obtained real microstructures from SEM considering interface damage between martensite (grains) and ferrite materials under static and cyclic loadings. Progressive damage analyses for FMLs and Sandwich panels with FML face sheets under repeated low velocity impacts and low cycle fatigue (LCF) condition.

Peridynamics

To overcome the existed shortcoming in the available progressive damage analyses and multiscale modeling in the frame work of finite element method, several PhD theses defined to implement the Peridynamics method (a nonlocal theory providing a link between classical continuum mechanics and molecular dynamics) in different scales for the analyses. Home software have been developed and the method has been employed to multiphase metals, composites under various loading conditions. Use of Peridynamics for material characterization of interface and interphase in multiphase material and composites to reduce the required expensive and high-tech experiments.

Direction and focus of my current researches;

1) Material design and development of metamaterials and composites in macroscale with special purposes such as negative Poisson's ratio, negative stiffness, and etc. for different applications,
2) Fatigue damage and mechanical behavior of 3D printed materials for different applications,
3) Solution to reduce the environmental effects such as UV and humidity on the mechanical performance and damage of composite pipes and repaired pipes,
4) The use of Peridynamics method and DIC for characterization of mechanical properties especially at interface and interphase of multiphase materials,
5) The use of Dual Framework Peridynamics (using two different frameworks to improve structural modeling with couple (or separate) subsidiary domain for modeling secondary phenomena involved in the physics of the issue) such as corrosion, creep and moisture absorption of composites.

It is worth to note that my 3 years experiences as the manager and director of university Technology and Innovation Center (university science and Technology Park) and 4 years

experiences as the university vice-chancellor for Research and Technology also able me to direct the research lines toward technology and commercialization.

University & other Experiences:

i. AUT- University Vice chancellor for Research & Technology (Nov. 2017– 12 Oct. 2021)

ii. AUT- Director of Technology & Innovation Center (Incubator, startups and knowledge-based Companies and Entrepreneurship Center) (Jan. 2015 – Nov. 2017)

iii. AUT- Establishment of Fatigue and Fracture laboratory in the department (2004)

iv. AUT- Head of Aerospace Engineering Department (May, 2001 - Jul., 06, 2004)

v. Consultant in the Iran Electricity Development Organization (Gas turbines division) (Sep., 1999 - May, 2003).

vi. Editorial board member, Journal of Multiscale Modelling-UK (Since 2016)

vii. Editorial board member, Journal of Science and Technology of Composites (Since 2014)

viii. Editorial board member, Journal of Aerospace Science and Technology (JAST) (Since 2002)

ix. AUT- Deputy of the education in Aero-Department (Jan., 1999 – May, 2001)

x. AUT- Postgraduate coordinator of Aero-Department (Sep., 1997 - Jan., 1999) and (Jul. 2014 – Jan. 2015)

xi. AUT- Head of Aerospace Structures academic group (Feb., 2006 - May, 2008)

Achievements in Research and Technology Management:

- Establishment of a master research and technology program for 5 years with the aims of i) increasing the quality and quantity of the university research and technology outcomes, ii) increasing the projects volume with industries, ii) commercialization of the part of research outcomes, iv) increasing the national and international impact of research and technology outcomes, v) directing the university research topics to the world megatrends.
- Development of the university innovation center to the University Technology Park
- Increasing the number of startups from 15 to more than 300 startups and knowledge-based companies
- Bringing the large companies to the university and establishment of 7 startups accelerators Establishment of 10 specialized innovation center in different engineering departments of AUT and their relations with private companies

Industrial Projects:

i. Remaining life assessment of steam boiler for "Neka Steam Power Plant", Iran, 1998-1999.

ii. Creep life assessments of crack-free components using simple methods, AUT (Granted by university founds and Finished on 14, Jan., 2002).

iii. Analytical and experimental investigations on fatigue life assessments of welded joints in the city buses structures, Iran (Funded by Iran Khodro Dizel Co.) (Finished in Jan., 2003).

iv. Design of active noise control systems for general purposes, Iran (Funded by the university and Finished on 03, Oct., 2004).

v. Design of active noise control system for trucks, Iran (Funded by Iran-Khodro Dizel Co. and Finished in Feb. 2005).

vi. Design standard for unmanned aerial vehicles (airplanes) with cylinder & piston engine (Funded by the center of standard and quality assurance), Iran (Finished in Feb. 2004).

vii. Development of Fatigue Life Assessment software for both crack initiation and crack propagation life based on FEM and semi-analytical methods - FLAi Software. (University Grants), AUT, (Finished in Mar. 2014)

viii. Multidisciplinary Projects; Experiences in designing and coordinating of two multidisciplinary and complex projects. The first one referring to the design and manufacturing of rotor and control systems and blades of an ultralight helicopter between 1987 till 1990 before starting my PhD program. I acted as both design engineer and system engineer to handle all interfaces and integration of these parts. The second experience refers to acting as the system engineering manager of a multidisciplinary project (student satellite design) in Amirkabir University of Technology between 2008 and 2011.

Teaching Lectures:

i. Fatigue, Creep and Fracture Mechanics (post graduate - from 1997 up to now for 24 Semester)

ii. Continuum Mechanics (postgraduate for 24 semester)

iii. Selected Topics (Mesh Free Methods) (postgraduate for 3 semester)

iv. Strength of Materials (undergraduate – 24 years)

v. Aircraft structural analysis (undergraduate – 5 semester)

vi. Machine Design (undergraduate, 8 Semester)

vii. Automatic Control (undergraduate – 3 semester)

viii. Engineering Mechanics - Statics (undergraduate – 3 semester)

ix. Introduction to Finite Elements Method (under graduate)

x. Material Nonlinear Finite Element Analyses (Post graduate)

xi. Damage Mechanics of Composites (Post Graduate)

xii. Micromechanics and Multiscale Modelling (Post graduate)

xiii. International Short Course of "Structural Integrity & Life Assessment" (Annually from 2015 –Now, 6 times)

xiv. Short Course of "Structural Integrity & Life Assessment; High Temperature Components" (Graduates and Industries)
xv. Short Course of "Structural Integrity & Life Assessment; Metallic Materials" (Graduates and Industries)
xvi. Short Course of "Structural Integrity & Life Assessment; Composite Materials" (Graduates and Industries)
xvii. Short Course of "Multiscale Modellings and Interface Modelling" (Graduates and Industries)
xviii. Short Course of "Composite Repair of Metallic Components" (Graduates and Industries)

Book Chapter

1- Behnam Anbarlooie, Javad Kadkhodapour, *Hossein Hosseini Toudeshky*, and Siegfried Schmauder, **Handbook of Mechanics of Materials**. "Micromechanics of Dual-Phase Steels: Deformation, Damage, and Fatigue", Springer, April 2018.

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Supervised PhD Theses:

i. Investigations on the effects of material damping on modal damping of delaminated composite laminates (in progress)
ii. Investigations on damage initiation and propagation in elastomers using hyper-viscoelastic strain energy density function and cohesive zone (in progress)
iii. Investigations of the size effects on the fracture strength of carbon fiber UD laminates using hybrid composites damage analyses concept (In Progress)
iv. Interphase material characterization of composite materials using peridynamics theory (Finished in Mar. 2023)
v. Experimental and theoretical investigation on tension and fracture properties of stiffened composites by hybrid braids (Finished in April 2022)
vi. Plasticity and damage analyses of particle composites under static loading using state based peridynamics theory and experiments (Finished in March 2022)
vii. Micromechanical & damage analyses of multiphase materials (DP Steels) under static loading using peridynamics theory (Finished in Sep. 2020).
viii. Analysis of transverse matrix cracking damage in micro-meso scale for non-symmetric cross ply laminates under tension and bending loading (Finished in Sep 2018).
ix. Damage mechanisms analyses of sandwich panels with FML face sheets under low cycle fatigue loading (Finished in Oct. 2018).
x. Loading rate, friction, and size effects on strain energy release rate in shearing mode II of laminates (Finished in Oct. 2017).
xi. Load carrying and progressive damage analyses of sandwich panels with composite face sheets and foam core under double sides bending load (Finished in Dec. 2016).

xii. Numerical and experimental investigations of the effects of matrix cracking on interlaminar energy release rate of multidirectional laminates (Finished in Nov. 2016).

xiii. Experimental and numerical analyses of static and fatigue material properties of nanostructure Al 6061 (Finished in Feb. 2016).

xiv. Static and dynamic stability analyses of nano electromechanical systems (beam type) considering nano scale forces and size effect (Finished in Feb. 2015)

xv. Analysis of matrix cracking and delamination damage mechanisms in general symmetric laminates with geometric discontinuity (Finished in Feb. 2014).

xvi. Analyses of delamination induced by matrix cracking using multiscale damage mechanic (Finished in Jan. 2013).

xvii. Coupling of micro and meso scale damage modeling in the framework of continuum damage mechanics (Finished in Feb. 2011).

xviii. Analysis of damage mechanisms in multi layers composite panels using high order layer-wise theory and plasticity-damage continuum mechanic approach (Finished in 2008).

xix. Improvements in the meshless methods using parametric mapping and applications (Finished in June 2006).

xx. Vibrations of a coupled air-structure with closed ends cylindrical shape (Finished in Dec. 2006)

Supervised MSc Theses:

1. Prediction of fatigue crack initiation and growth in homogeneous materials simultaneously using peridynamics and finite elements methods (in progress)
2. Investigation on the effect of negative poisson's ratio on fracture toughness and fatigue resistance of composite laminates using experimental and continuum damage mechanics methods (in progress)
3. Sensitivity analysis of interphase mechanical properties in glass/polymer composites considering matrix type, hardener percentage and curing cycle parameters, using single fiber composite specimen test & numerical methods (in progress)
4. Effects of specific geometries and the use of bimaterials on overall poisson's ratio and damage potentials of metals alloys using experimental and CDM methods (3D printing) (In progress 2021).
5. Effects of specific geometries, different material layers and layups on overall poisson's ratio and damage distribution using experimental and numerical methods. (Finished May 2023).
6. Interphase material characterization for glass fiber/epoxy using single fiber test specimens and DIC technic (Finished in Sep. 2021).
7. Prediction of corrosion damage evolution and crack propagation in metals using Peridynamic method (Finished in Feb. 2021).
8. Creep-fatigue life assessment of metal alloy complex components using continuum damage mechanic (Finished in Feb. 2018).

9. Continuum damage analysis and crack growth of metallic plates under creep behavior with stress concentrator under uniform temperature and constant loading (Finished in Feb. 2015)
10. Progressive debonding of wind turbine composite blade from hub due to fatigue loading (Finished in Jul. 2015)
11. Damage analysis of 2D components under creep behavior using cohesive elements (Finished in Jun. 2014)
12. Effects of Fiber-Matrix debonding on mechanical behavior of composite laminates using micromechanical approach (Finished in Oct. 2014)
13. Micromechanical high cycle fatigue behavior analysis of dual phase steel (DP-600) using experimental and numerical approaches (Finished in Sep. 2014)
14. Micromechanical modeling to obtain mechanical properties and Low cycle fatigue crack growth for dual phase AL alloys (Finished in Oct. 2014)
15. Intralaminar damage modeling in composite laminates using multi-scale approach (Finished in Feb. 2013)
16. Progressive delamination analysis in fiber metal laminates (FML) under cyclic in-plane and out of plane loading using cohesive elements (Finished in Nov. 2013)
17. Delamination growth of composite laminates under cyclic compressive loading using de-cohesive law (Finished in Feb. 2012)
18. Analysis of crack propagation in thin panels with extended finite element method (XFEM) (Finished in Feb. 2012)
19. Effects of curing temperature on the crack propagation of aluminum plates repaired by FML patches(GLARE) under fatigue loading (Finished in Feb. 2011)
20. Effective parameters on deboning of composite patches on aluminum repaired panels (Finished in Feb. 2011)
21. Effects of matrix crack and delamination on the damage of composite laminates using FEM based micro mechanical approach (Finished in Feb. 2011)
22. Repair of cracked stiffened Aluminum panels under combined cyclic tension and shear loading using composite patches (Finished in Nov. 2011)
23. Acoustic fatigue analysis of composite cylinders with and without damage (Finished in Jan. 2010)
24. Damage prediction in composite laminates using element-free Galerkin method (Finished in Jan. 2010)
25. A coupled interface approach for damage analysis of mixed-mode delamination in laminated composites (Finished in January 2009)
26. Interlaminar crack initiation and propagation due to the edge effects of composite laminates using Layer-wise and LEFM theory (Finished in March 2009)
27. Scarf repair of composite laminates (Finished in Feb. 2009)
28. Effects of Curing Temperature on Fatigue Crack Growth of Repaired Panels Using Various Composite Materials (Finished in June 2008)

29. Delamination Analyses in Laminated Composites Using Interface Element (Finished in June 2008)
30. Effect of variable amplitude loading sequence on fatigue crack growth of components (finished in Mar. 2007)
31. Mechanical behavior of human cornea after LASIK surgery using finite element method (finished in Feb. 2006)
32. Crack growth prediction of two dimensional panels using meshless Galerkin method (finished in Feb. 2006)
33. Finite element and experimental failure analysis of skin/stringer components under monotonic tension loading (finished on 05, May, 2005)
34. Experimental crack growth analysis of both thin and thick aluminum repaired panels using composite material (finished on 20, Aug., 2005)
35. Three dimensional analyses of the repaired panels in general mixed-mode conditions using composite material (finished on 31, Oct., 2005)
36. Three-dimensional damage tolerance analyses of the aluminum repaired panels using composite patches- Mode-I (finished on 25, May, 2004)
37. Modeling and analysis of coupled air-structure systems using finite element method (finished in Oct., 2004)
38. Stiffening methods of composite structures against buckling (finished in Mar., 2003)
39. Repair of metal panels containing cracks in mixed-mode conditions using composite material (finished in Feb., 2003)
40. Creep crack growth life prediction of the components using finite element method (finished in July, 2003)
41. Effect of loading frequency on the fatigue life of components (finished in Sep., 2001)
42. Damage tolerance analysis of the repaired aircraft structures (finished in Jan., 2000)
43. Failure probability of components holding uncertain properties under random loading (finished in Nov., 2000)
44. Fatigue life assessments of isotropic and composite components (finished in Oct., 2000)
45. Crack growth life prediction under variable load cycles (finished in June, 1999)
46. ……

Journal Publications:

Journals, Part I: Progressive Damage Analyses, Continuum Damage & Multiscale Modeling & Material Characterization

1. *H. Hosseini-Toudeshky and A. Navaei, "*Characterization of elastic modulus at glass/fiber interphase using single fiber composite tensile tests and utilizing DIC and FEM", Accepted for publication in the Journal of Mechanics of Advanced Materials and Structures, June 09, 2023.

2. *H. Hosseini-Toudeshky,* F. Sheibanian, P. Sabzi and M. Jalalvand, "Comprehensive progressive damage analyses of mixed-mode repaired panels - How composite patch sizes and layups affects restarting fatigue crack growth", Accepted for publication in the Journal of Fatigue & Fracture of Engineering Materials & Structures, May 2023.

3. M. Saber and *H. Hosseini-Toudeshky*, "Material characterization of glass/siloxane interface in composite materials", Accepted for publication in Iranian Journal of Science and Technology, Transactions of Mechanical Engineering, May. 2023.

4. J. Nafar Dastgerdi, O. Jaberi, H. Remes, P. Lehto, *H. Hosseini Toudeshky* and J. Kuva "Fatigue damage process of additively manufactured 316L steel using X-ray computed tomography imaging", accepted for publication in Additive Manufacturing, 13 April 2023.

5. Milad Saeedifar and *Hossein Hosseini Toudeshky*, "The Effect of Interlaminar and Intralaminar Damage Mechanisms on the Quasi-Static Indentation Strength of Composite Laminates", accepted for publication in Applied Composite Materials, 18 March 2023.

6. Mina Jahanmardi, *Hossein Hosseini-Toudeshky*, E. Carrera, and Alfonso Pagani, "Modified Hyper-viscoelastic Damage Evolution Constitutive Model for Polyurethane Materials - An Experimental and Numerical Investigation", Accepted for publication in the Journal of Mechanics of Advanced Materials and Structures, 14 Feb. 2023.

7. M. Saber and *H. Hosseini-Toudeshky*, "Interphase elastic modulus characterization in glass/epoxy composite using combined peridynamics and experimental method", accepted for publication in the Journal of Reinforced Plastics and Composites, Jan. 19, 2023.

8. M. Saber and *H. Hosseini-Toudeshky*, "Interphase characterization of glass/epoxy composite using peridynamic method and micro tensile test", accepted for publication in Composite Interfaces, 04 Oct. 2022.

9. Mina Jahanmardi, *Hossein Hosseini Toudeshky*, Mohammad Saeed Goodarzi, "Experimental Hyper-viscoelastic Constitutive Model for Numerical Study of Elastomer Materials", Accepted for publication in the journal of Applied Nanoscience, 19 June 2022, doi: 10.1007/s13204-022-02554-y.

10. Ghazal Ghamkhar, Majid Safar Johari, *Hossein Hosseini-Toudeshky*, "An experimentally validated model for predicting the tensile modulus of tubular biaxial and triaxial hybrid braids", accepted for journal of Polymer Composites, Sep. 2022, doi.org/10.1002/pc.27079.

11. *H. Hosseini-Toudeshky*, M. Jannesari, "An investigation on creep life assessment of welded steam pipeline intersection using classical and progressive damage analyses", Accepted for publication in the Journal of Welding in the World, 24 May 2022.

12. M. Noghabi, I. Sattarifar and *H. Hosseini-Toudeshky*, "The study on the overloading effect on fatigue crack growth considering residual stress relaxation in Al 5456-H38", Accepted for publication in Mechanics Based Design of Structures and Mechanics, 02 May 2022.

13. J. Nafar Dastgerdi, M. LotYasouri, *H. Hosseini-Toudeshky,* "Microstructure-sensitive investigation on the mechanical behavior of CNT-reinforced composites considering debonding damage

based on cohesive finite element method", Journal of Materials Today Communications, 31, 103458, Apr. 2022.

14. F. Mazaheri and *H. Hosseini-Toudeshky*, "Low-Cycle Fatigue Delamination Initiation and Propagation in Fiber Metal Laminates", Fatigue and Fracture of Engineering Materials and Structures, vol. 38, pp. 641-660, 2015.

15. F. Mazaheri, *H. Hosseini-Toudeshky*, "Experimental investigations of static and fatigue crack growth in sandwich structures with foam core and FML face sheets", AUT Journal of Mechanical Engineering, Vol. 2, No. 2, pp. 149-164, 2018.

16. *H. Hosseini-Toudeshky*, P. Parandavar, and B. Anbarlooei, "Stress-strain prediction of dual phase steels using 3D RVEs considering both interphase hardness variation and interface debonding at grain boundaries", accepted for publication in Archive of Applied Mechanics, Aug. 2021.

17. B. Anbarlooei and *H. Hosseini-Toudeshky*, "Damage Mechanisms Analyses in DP Steels using SEM Images, FEM and Nonlocal Peridynamic Methods", Accepted for publication in the Journal of Materials Engineering and Performance, Dec. 2020.

18. M. Ahmadi, M. Fotouhi, *H. Hosseini-Toudeshky* and M. Sadighi, "Damage behavior analysis of Al/TiC particulate composite by acoustic emission monitoring and peridynamic modeling", Accepted for publication in Journal of Composites Part C, Nov. 2021.

19. Morteza Ahmadi, *Hossein Hosseini-Toudeshky*, and Mojtaba Sadighi, "Microstructure-based deformation and fracture modeling of particulate reinforced composites with ordinary state-based Peridynamic theory", accepted for publication in Composite Structures, Sep. 2021.

20. Morteza Ahmadi, *Hossein Hosseini-Toudeshky*, and Mojtaba Sadighi, "Micro-mechanical damage analysis of Al-Tic particulate reinforced composites by peridynamic theory", Amirkabir Journal of Mechanical Engineering, 53, No. 8, pp. 13-23, 2021. (in Persian).

21. Morteza Ahmadi, *Hossein Hosseini-Toudeshky*, and Mojtaba Sadighi, "Peridynamic micromechanical modeling of plastic deformation and progressive damage prediction in dual-phase materials", Engineering Fracture Mechanics, 2020, 235, 107179, doi.org/10.1016/j.engfracmech.2020.107179.

22. Morteza Ahmadi, Mojtaba Sadighi, and *Hossein Hosseini-Toudeshky,* "Computational microstructural model of ordinary state-based peridynamic theory for damage mechanisms, void nucleation, and propagation in DP600 steel", Engineering Fracture Mechanics, 2021, 247, 107660.

23. B. Anbarlooei and *H. Hosseini-Toudeshky*, "Peridynamic micromechanical prediction of nonlocal damage initiation and propagation in DP steels based on real microstructure", International Journal of Mechanical Sciences, Vol. 153-154, pp. 64-74, 2019.

24. Hossein Hosseini-Toudeshky and Fazel Abdolrezaei Amjad, "Sensor placement optimization for guided wave-based structural health monitoring", Structural Monitoring and Maintenance, Vol. 8, No. 2 (2021) 125-150.

25. Ghazal Ghamkhar, Majid Safar Johari, *Hossein Hosseini-Toudeshky*, "Investigating the effect of braiding angle and combination on the tensile Modulus of biaxial hybrid braids", accepted for publication in journal of Polymers, 31, Mar., 2021.

26. Jairan Nafar Dastgerdi, Fariborz Sheibanian, Heikki Remes, *Hossein Hosseini-Toudeshky*, "Influences of residual stress, surface roughness and peak-load on micro-cracking: sensitivity analysis", Journal of Metals-Metals Failure Analyses, 2021, *11*(2), 320; https://doi.org/10.3390/met11020320.

27. J. Nafar Dastgerdi, F. Sheibanian, H. Remes and *H. Hosseini-Toudeshky*, "Numerical modeling approach for considering effects of surface integrity on micro-crack formation", Journal of Constructional Steel Research, 2020, 175, 106386.

28. Ghazal Ghamkhar, Majid Safar Johari, and *Hossein Hosseini Toudeshky* "A review of the different standard methods of measuring the tubular braiding angle", accepted for publication in AUT Journal of Mechanical Engineering, Feb. 2021.

29. *H. Hosseini-Toudeshky*, F. Sheibanian, H.R. Ovesy, and M.S. Goodarzi "Prediction of interlaminar fatigue damage in adhesively bonded joints using mixed mode strain based cohesive zone modelling", Theoretical and applied fracture mechanics, 2020, 106, 102480.

30. M.S. Goodarzi, *H. Hosseini-Toudeshky*, H. Ghashochi-Bargh, "Nanoindentation characterization of Glass/Epoxy composite for viscoelastic damage interlaminar modeling", Engineering Fracture Mechanics, 2020, 226, 106873.

31. J. Ebadi-Rajoli, A. Akhavan-Safar, *H. Hosseini-Toudeshky*, L. da Silva, "Progressive damage modelling of composite materials subjected to mixed mode cyclic loading using cohesive zone model", Mechanics of Materials, 2020, 143, 103322.

32. H.A. Rashtyani, *H. Hosseini-Toudeshky*, and M. Mondali, "Analytical study of transverse cracking in cross-ply laminates under combined loading based on a new coupled micro-meso approach", Mechanics of Materials, 139 (2019) 103149, doi.org/10.1016/j.mechmat.2019.103149.

33. H. Pakdel, B. Mohammadi, and *H. Hosseini-Toudeshky*, "Stress and energy based prediction of crack distribution pattern in general cross-ply laminates", Engineering Fracture Mechanics, 2020, 223, 106769, DoI: doi.org/10.1016/j.engfracmech.2019.106769.

34. A. Mahmoudi, B. Mohammadi, and *H. Hosseini-Toudeshky*, "Damage behavior of laminated composites during fatigue loading", Journal of Fatigue & Fracture of Engineering Materials & Structures, Vol. 43, Issue 4, April 2020, pp. 698-710, DoI: 10.1111/ffe.13152.

35. R. Hedayati, R., *H. Hosseini-Toudeshky*, M. Sadighi, M. Mohammadi-Aghdam, and A.A. Zadpoor,, "Multiscale modeling of fatigue crack propagation in additively manufactured porous biomaterials", International Journal of Fatigue, vol. 113, pp. 416-427, 2018.

36. B. Hamidi Ghaleh Jigh, *H. Hosseini-Toudeshky*, M.A. Farsi, "Low cycle fatigue analyses of open-celled aluminum foam under compression-compression loading using experimental and microstructure finite element analysis", Journal of Alloys and Compounds, Vol. 797, pp. 231-236, 2019.

37. M.H. Ghayour, N. Chitsaz, *H. Hosseini-Toudeshky*, and E.J. Barbero, "Enhanced variational approach for damage analysis of laminated composite", Mechanics of Advanced Materials and Structures, 2020, 27(17), pp. 1483–1493.

38. B. Anbarlooei, *H. Hosseini-Toudeshky*, M. Hosseini, and J. Kadkhodapoor, "Experimental and 3D micromechanical analysis of stress-strain behavior and damage initiation in dual phase steels", Journal of Materials Engineering and Performance, (28)5, pp. 2903-2918, 2019.

39. Yousefi, J., Najafabadi, M.A., *Toudeshky H.H.*, Akhlaghi, M., "Damage evaluation of laminated composite material using a new acoustic emission lamb-based and finite element techniques", Applied Composite Materials, vol. 25(5), pp. 1021-1040, 2018.

40. M.S. Goodarzi and *H. Hosseini-Toudeshky*, "*Modified DEBA for determining size dependent shear fracture energy of laminates", Steel and Composite Structures*", Vol. 28, No. 1, 111-121, 2018.

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