

RESUME



Full Name

- Ahmad Ghasemi-Ghalebahman

Academic Position

- Assistant Professor of Mechanical Engineering Department, Semnan University, Semnan, Iran, September 2008 to present

Office Address

- Mechanical Engineering Department, Semnan University, Semnan, 35131-19111 Iran

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Education and Technical Biography: Ahmad Ghasemi Ghalebahman received the MS and PhD degrees both in mechanical engineering from the Iran University of Science and Technology, Tehran, Iran, in 2001 and 2008, respectively. He is currently an Assistant Professor in the Department of Mechanical Engineering at Semnan University, Semnan, Iran. His current research interests include: fatigue and fracture evaluation in metallic and polymer-based composite materials, structural analysis and mechanical behavior of composite and nanocomposite materials, nondestructive damage detection, inverse finite element formulation of time dependent field problems, and simulation of finite deformations.

Work Experience

Working on aviation industry projects for finite element modeling of turbine rotor blades as well as estimation of diffusion properties and heat shock boundary conditions via an inverse approach

Professional Service

Director-in-Charge, journal of Mechanics of Advanced Composite Structures (MACS), Website: <http://macs.journals.semnan.ac.ir/>

Courses Taught

- *Undergraduate:* Machine Design-1, Strength of Materials-1, Strength of Materials-2, Statics, Dynamics, Composite Materials, Mechanism Design
- *Graduate:* Advanced Composite Materials, Fatigue and Fracture Mechanics, Finite Element Method, Continuum Mechanics

Computer Skills

Mathematica, Matlab, Fortran, Ansys

Research Experience

- Inverse finite element formulation of the time dependent field problems
- Simulation of finite plastic deformation
- Vibration and buckling analysis of thick composite laminates using high order plate theories
- Mixed mode fracture analysis in composite materials
- The effect of non-proportional loading on fatigue life prediction
- Damage evaluation in composite materials using nondestructive approaches

Research Interests

- Time step criteria and sub-region analysis in numerical modeling of time-dependent field problems
- Modification of finite element formulation via the inverse approaches
- Application of Layerwise and high order shear deformation theories for vibration and structural analysis of the laminated composite materials
- Crack growth modeling using XFEM
- Differential quadrature method (DQM) and Meshless Local Petrov-Galerkin method (MLPG) in time-dependent field problems
- Geometry and material nonlinearity in finite deformations
- Damage detection in composite laminates
- Identification of parametric structural vibration models

Publications

Research articles

- M. Nejati, A. Ghasemi-Ghalebahman, A. Soltanmaleki, R. Dimitri, F. Tornabene, Thermal vibration analysis of SMA hybrid composite double curved sandwich panels, *Composite Structures*, Volume 224, DOI: <https://doi.org/10.1016/j.compstruct.2019.111035>, 111035, In Press 2019
- H. Sayar, M. Azadi, A. Ghasemi-Ghalebahman, S.M. Jafari, "Clustering effect on damage mechanisms in open-hole laminated carbon/epoxy composite under constant tensile loading rate, using acoustic emission", *Composite Structures*, Vol. 204, pp. 1-11, 2018
- Ahmad Ghasemi-Ghalebahman, E. Cheloeian, "Vibration analysis of boron nitride reinforced nanocomposites embedded in elastic medium considering surface and electric field effects by using higher order modified strain gradient theory", *Journal of Science and Technology of Composites (in Persian)*, DOI: 10.22068/jstc.2018.81209.1418, In Press 2018
- F. Masoumi, A. Ghasemi-Ghalebahman, M.J. Kokabi, "Identification of mechanical and damage parameters of composite laminates based on a CPAM method", *Journal of Reinforced Plastics and Composites*, Vol. 37, No. 17, pp. 1114-1128, 2018
- M. Azadi, H. Sayar, A. Ghasemi-Ghalebahman, S.M. Jafari, "Tensile loading rate effect on mechanical properties and failure mechanisms in open-hole carbon fiber reinforced

polymer composites by acoustic emission approach”, *Composites Part B: Engineering*, Vol. 158, pp. 448-458, 2019

- M.R. Ashory, A. Ghasemi-Ghalebahman, M.J. Kokabi, “Damage identification in composite laminates using a hybrid method with wavelet transform and finite element model updating”, *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science*, Vol. 232, No. 5, pp. 815-827, 2018
- A. Ghasemi G., H. Sayyar, M. Azadi, and S. M. Jafari, “Failure mechanisms in open-hole laminated composites using acoustic emission”, *Journal of Science and Technology of Composites (in Persian)*, Vol. 5, No. 1, pp. 143-152, 2018
- A. Ghasemi G and A. Khakbaz, “Vibration of graphene sheets with axial force effect in elastic medium based on nonlocal elasticity and third-order shear deformation theory”, *Modares Mechanical Engineering (in Persian)*, Vol. 18, No. 4, pp. 232-240, 2018
- A. Ghasemi G., M.R. Ashory, and M.J. Kokabi, “An efficient modal strain energy-based damage detection for laminated composite plates”, *Advanced Composite Materials*, pp. 1-17, 2017
- A. Ghasemi G., J. Akbardoost and Y. Ghaffari, “Evaluation of size effect on mixed-mode fracture behavior of epoxy/silica nanocomposites”, *Journal of Strain Analysis*, Vol. 52, No. 4, pp. 1-10, 2017
- A. Ghasemi G., M.R. Ashory, and M.J. Kokabi, “A proper lifting scheme wavelet transform for vibration-based damage identification in composite laminates”, *Journal of Thermoplastic Composite Materials*, Vol. 31, No. 5, pp. 668-688, 2018
- F. Masoumi and A. Ghasemi G., “Sensitivity Analysis of a CPAM Inverse Algorithm for Composite Laminates Characterization”, *Shock and Vibration*, Vol. 2017, Article ID 2821873, pp. 1-14, 2017
- M.R. Ashory, A. Ghasemi G., and M.J. Kokabi, “Increasing robustness of solution to noise for identifying delamination damage in composite plates using a hybrid method”, *Journal of Science and Technology of Composites (in Persian)*, Vol. 4, No. 2, pp. 125-134, 2017
- R. Madoliat, A. Ghasemi G., G. Mohammad-Hanifeh, “Effect of damping on nonlinear forced vibration response of graphene-based nanocomposites”, *Journal of Science and Technology of Composites (in Persian)*, Vol. 4, No. 2, pp. 141-150, 2017
- H. Mansoori, S. Babaei, and A. Ghasemi G., “A novel numerical method for fatigue life prediction under non-proportional loadings”, *Modares Mechanical Engineering (in Persian)*, Vol. 17, No. 5, pp. 232-242, 2017
- H. Sayar, M. Alizadeh, M. Azadi, A. Ghasemi G., S. M. Jafari, and A. Mafi, “Investigation of crack growth behavior in aluminum alloy used in engine components, by acoustic emission method”, *The Journal of Engine Research (in Persian)*, Vol. 48, pp. 3-12, 2017
- M.R. Ashory, A. Ghasemi G., and M.J. Kokabi, “Damage detection in laminated composite plates via an optimal wavelet selection criterion”, *Journal of Reinforced Plastics and Composites*, Vol. 35, No. 24, pp. 1-15, 2016

- A. Ghasemi G., M. Moradi G., "A novel vibration-based optimization technique for identifying elastic constant distribution and volume fraction index in functionally graded rectangular plates", *Modares Mechanical Engineering (in Persian)*, Vol. 16, No. 6, pp. 245-254, 2016
- S. Babaei, A. Ghasemi G., R. Hajighorbani, "A fatigue model for sensitive materials to non-proportional loadings", *International Journal of Fatigue*, Vol. 80, pp. 266-277, 2015
- S. Babaei, A. Ghasemi G., "Damage-based modification for fatigue life prediction under non-proportional loadings", *International Journal of Fatigue*, Vol. 77, pp. 86-94, 2015
- Y. Rostamiyan, A. Fereidoon, A. Ghasemi G., A.H. Mashhadzadeh, A. Salmankhani, "Experimental study and optimization of damping properties of epoxy-based nanocomposite: Effect of using nanosilica and high-impact polystyrene by mixture design approach", *Materials & Design*, Vol. 65, pp. 1236-1244, 2015
- A. Ghasemi G., S. Salavati, "Utilizing the extended finite element method for determining crack stress intensity factors and higher order terms coefficients", *journal of Modares Mechanical Engineering (in Persian)*, Vol. 15, No. 2, pp. 135-146, 2015
- M.M. Shokrieh, R. Madoliat, B. Bostani, A. Ghasemi, V. Mohmoodian, "A new inverse method for determination of unidirectional ply mechanical properties of a laminated composite", *journal of Modares Mechanical Engineering (in Persian)*, Vol. 15, No. 1, pp. 352-360, 2015
- M. Rezvani, A. Ghasemi G., "Interlaminar stresses in symmetric cross-ply composite laminates using Layerwise theory", *journal of Modares Mechanical Engineering (in Persian)*, Vol. 14, No. 1, pp. 59-66, 2014
- A. Ghasemi G. and M. Akbarzadeh, "Calibration Coefficients for Residual Stress Measurement in Composite Materials Using Finite Element Method", *American J. of Engineering and Applied Sciences*, Vol. 5, No. 1, pp. 25-28, 2012
- R. Madoliat, S. Hayati, and A. Ghasemi G., "Modeling and analysis of frictional damper effect on chatter suppression in a slender endmill tool", *Journal of Advanced Mechanical Design, Systems, and Manufacturing*, Vol. 5, No. 2, pp. 115-128, 2011
- R. Madoliat, S. Hayati, and A. Ghasemi G., "Investigation of chatter suppression in slender endmill via a frictional damper", *Scientia Iranica*, Vol. 18, No. 5, pp. 1069-1077, 2011
- R. Madoliat, and A. Ghasemi, "Bilinear rectangular element matrices for diffusion problems via the inverse method", *Inverse Problems in Science and Engineering*, 1741-5985, Vol. 17, No. 7, pp. 961 – 975, 2009
- R. Madoliat, and A. Ghasemi, "Inverse finite element formulations for transient heat conduction problems", *Heat and Mass Transfer*, Vol. 44, Number 5, pp. 569- 577, 2008
- R. Madoliat, and A. Ghasemi, "Operating regions for discrete models based on physical reality of diffusion problems" *Journal of Thermophysics and Heat Transfer*, Vol. 21, Number 1, pp. 158-165, 2007

Conference Papers

- M.H. Safari-Naderi, H. Ekhteraei-Toussi, A. Ghasemi-Ghalebahman, "Investigation of delamination phenomenon in a multilayer composite structure used in the wind turbine blade", ISME2018 (in Persian), 24-26 April 2018, Semnan University, Semnan, Iran
- H. Sayar, M. Alizadeh, M. Azadi, A. Ghasemi G., and S.M. Jafari, "Analysis of acoustic emission data to investigate the crack growth behavior in an aluminum alloy under low cycle fatigue loading", ISME2018 (in Persian), 24-26 April 2018, Semnan University, Semnan, Iran
- M. Khademi-Kouhi, O. Mir, H. Mohammadi-Feizi, A. Ghasemi Ghalebahman, H. Pourmirza-Agha, Investigating the effect of compressor pressure ratio on the performance of axial gas turbine operation, ISME2018 (in Persian), 24-26 April 2018, Semnan University, Semnan, Iran
- M. Azadi, H. Sayar, M. Alizadeh, N. Raeisi, A. Moosavian, A. Ghasemi G., S.M. Jafari, and M. Shakouri, "A Comparison between Acoustic Emission Approach and Vibration Analysis in Detection of Failure Mechanisms in Carbon/Epoxy Composites", The Biennial International Conference on Experimental Solid Mechanics, Feb. 13-14, 2018, Tehran, Iran.
- F. Masoumi, A. Ghasemi Ghalebahman, "Determination of mechanical constants of unidirectional glass/epoxy composite plates by using modal test", The 25th Annual International Conference on Mechanical Engineering, ISME2017-1630, 2-4 May 2017, Tarbiat Modares University, Tehran, Iran
- F. Masoumi, A. Ghasemi Ghalebahman, "Stacking sequence identification of thin and thick laminated composite plates by vibration analysis and an inverse method", The 25th Annual International Conference on Mechanical Engineering, ISME2017-1401, 2-4 May 2017, Tarbiat Modares University, Tehran, Iran
- S. Babaei, H. Mansoori, A. Ghasemi-Ghalebahman, "Numerical modification for fatigue life prediction under asymmetric loading", 16th International Conference on New Trends in Fatigue and Fracture (NT2F16), May 24-27, 2016, Dubrovnik, Croatia
- A. Zamani, A. Ghasemi-Ghalebahman, and A. Fereidoon, "Fatigue life prediction in symmetric composite laminates based on micromechanical approach", 16th International Conference on New Trends in Fatigue and Fracture (NT2F16), May 24-27, 2016, Dubrovnik, Croatia
- S. Babaei, H. Mansouri, and A. Ghasemi G., "Modification for fatigue life prediction under non-proportional loading", 16th International Conference on New Trends in Fatigue and Fracture (NT2F16), May 24-27, 2016, Dubrovnik, Croatia
- A. Ghasemi G., M. Moradi Golestani, "A novel optimization technique for identifying stacking sequence and elastic constants in composite laminates", The Bi-Annual International Conference on Experimental Solid Mechanics, Feb. 16-17, 2016, Tehran, Iran.

- A. Kamaloo, R. Madoliat, A. Ghasemi G., "Optimization of Composite Laminates for Minimum Weight and Delamination Fatigue Crack Growth Rate using NSGA-II", The 4th international conference on composites: characterization, fabrication and application (ccfa-4), Dec. 16-17, 2014, Tehran, Iran
- A. Ghasemi-Ghalebahman, R. Amininejad, "A review of self-healing polymeric nanocomposites based on the encapsulation method", 3rd nation conference and 1st international conference on applied research in electrical, mechanical & mechatronic (in Persian), February 17-18, 2016, Malek-Ashtar University of Technology, Tehran, Iran
- احمد قاسمی قلعه بهمن، عبدالحسین فریدون و آرش زمانی، "پیش بینی عمر خستگی در چندلایه های مرکب متقارن با الیاف زاویه دار بر اساس دیدگاه میکرومکانیک"، دومین کنفرانس بین المللی پژوهش در مهندسی، علوم و تکنولوژی، ۲ اسفند ۱۳۹۴، دبی، امارات
- احمد قاسمی قلعه بهمن، عبدالحسین فریدون و آرش زمانی، "بررسی روش های تحلیل خرابی در چندلایه های مرکب آسیب دیده"، دومین کنفرانس بین المللی علوم و مهندسی، ۲۸ اسفند ۱۳۹۴، استانبول، ترکیه
- احمد قاسمی قلعه بهمن و محمد مرادی گلستانی، "تکنیک روش معکوس برای تعیین خواص مکانیکی و توزیع ماده در ورق های مستطیلی FGM"، کنفرانس بین المللی پژوهش های نوین در علوم مهندسی، ۱۳ خرداد ۱۳۹۵، دانشگاه تهران، ایران
- A. Ghasemi G. and M. Akbarzadeh, "Determining the residual stresses in composite materials by finite element method", United Kingdom-Malaysia- Ireland, Engineering Science Conference, 12-14 July, 2011

Published Books:

- V.V. Vasiliev and E. V. Morozov, *Advanced Mechanics of Composite Materials and Structural Elements*, Translated from English to Persian by A. Ghasemi-Ghalebahman and A. Kamyab, 1st Edition, Semnan: Semnan University Press, Iran, 2017 (Original work published: 3rd Edition 2013).
- R. Madoliat and A. Ghasemi-Ghalebahman, *Finite Element: Conventional Approach and Inverse Method* (In Persian), 1st Edition, Tehran: IUST Press, Iran, 2018.

Number of theses completed under my supervision:

- Undergraduate: 23
- Graduate: 21

Number of theses currently under my supervision:

- Undergraduate: 3
- Graduate: 7

Master's thesis topics completed under my supervision:

1. Ali Khakbaz: Free vibration analysis of two-layer graphene plates in an elastic medium using nonlocal shear deformation theory, February 2018.
2. Elham Cheloeian: Vibration analysis of Boron-Nitride nanocomposites with consideration of electrical and magnetic effects, February 2018.
3. Meysam Bigdeli-Yeganeh: Using semi-energy finite strip method for buckling analysis of composite plates, February 2018.
4. Hasan Sayar: Failure mode decomposition in composite laminates through acoustic emission approach, September 2017.

5. Ali Rahmani: Buckling and post-buckling analysis of functionally graded nanocomposite cylindrical shells, February 2017.
6. Mostafa Sabaghian: Predicting the fracture behavior of the key-hole shapes in polyamide polymers, September 2017.
7. Mahdi Golbakhi: Determination of mixed-mode stress intensity factors using interaction integral approach, February 2017.
8. Seyyed Mohsen Hosseini: Optimization of weight and natural frequency of stiffened FGM cylindrical shells, August 2016.
9. Yaser Ghaffari: Size effect on mixed-mode brittle fracture of nanosilica/epoxy composites, June 2015.
10. Saeid Babaei: Modeling of cyclic plasticity and investigating the effect of fluctuating loading path on fatigue life prediction, February 2015.
11. Mohammad-Reza Hossein-Pourian-Taheri: Active vibration control of laminated composite rectangular plates coupled with piezoelectric actuators, February 2015.
12. Abdulwahid Chalaki: Inverse vibration technique for identifying the elastic constants of composite plates, October 2015.
13. Oveis Asgari: Mixed-mode Interlaminar crack growth modeling in composite laminates under fatigue loading, October 2014.
14. Reza Abdulmaleki: Damage study due to matrix cracking in laminated composites subjected to fatigue loading using a micromechanics approach, October 2014.
15. Saeed Salavati: Crack growth modeling in isotropic media using extended finite element method, March 2014.
16. Hossein-Ali Khayat: Design of a new 4000 tons hydraulic particle-board press, March 2013.
17. Morteza Rezvani: Determination of Interlaminar stresses in cross-ply and balanced composite laminates using Layerwise theory, February 2013.
18. Farshid Masoumi: Characterization of elastic moduli in polymer-based composite laminates via vibration modal testing, February 2013.
19. Mohammad Akbarzadeh: Determination of residual stresses in composite laminates using hole-drilling approach, September 2011.

PhD thesis topics completed under my supervision:

1. Mohammad-Javad Kokabi: Determination of depth and size of delamination damage in composite plates based on simultaneous use of wavelet transform and finite element model updating, February 2017.

Master's thesis topics currently under my supervision:

1. Tensile creep analysis in a polymeric nanocomposite
2. Structural behavior of Borophene-reinforced polymer composites using density functional theory
3. Material characterization in functionally graded cylinders by means of determining sound transmission loss.

PhD's thesis topics currently under my supervision:

1. Encapsulation of self-healing polyurethane nano-composites and its material and failure characterization.
2. Detection of progressive damage modes in a rotating bending fatigue Testing using acoustic emission approach
3. Fatigue life prediction in elastomeric materials reinforced by nanoparticles
4. Synthesis of a hybrid shape memory polymer and evaluation of its mechanical behavior