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Majid Mirzaei

Education

1992 **PhD** Mechanical Engineering.

McGill University, Montreal, Canada.

Dissertation: On Fatigue Crack Closure Analysis and Measurement

1987 **MSc** Metallurgical Engineering.

Tehran University, Tehran, Iran.

Dissertation: Design and Manufacture of Pressure Vessels based on Fracture Mechanics

1985 **BSc** Metallurgical Engineering.

Tehran University, Tehran, Iran.

Dissertation: On Mechanical Properties of High-Strength Steels

Academic Experience

1992-2016 Tarbiat Modares University

Graduate Courses: Online Lecture Notes:

- Fracture Mechanics
www.geotechlinks.com/Links/Mirzaei-FractureMechanicsLecture.pdf
- Theory of Elasticity
www.geotechlinks.com/Links/Mirzaei-ElasticityLecture.pdf
- Finite Element Methods I
- Finite Element Methods II
- Continuum Mechanics

Graduate Students

- 2 PostDoc Researchers.
- 10 PhD Students.
- 40 MSc Students.

A full list is provided at the end of this resume.

Selected Publications:

Book Chapters:

- 1- Majid Mirzaei (2010). Finite Element Analysis of Deformation and Fracture of Cylindrical Tubes under Internal Moving Pressures , Finite Element Analysis, David Moratal (Ed.), ISBN: 978-953-307-123-7, InTech, Available from: www.intechopen.com/articles/show/title/finite-element-analysis-of-deformation-and-fracture-of-cylindrical-tubes-under-internal-moving-press
- 2- Fatemeh Alavi, Amir Hossein Behraves, Majid Mirzaei (2014). Fracture Mechanism of Wood-Plastic Composites (WPCS): Observation and Analysis, Lignocellulosic Polymer Composites: Processing, Characterization, and Properties. Vijay Kumar Thakur (Ed.), Wiley Online Library, DOI: 10.1002/9781118773949.ch17

Selected Journal Papers (in English):

- (2016) Allaveisi F., Mirzaei M. Effects of high-dose gamma irradiation on tensile properties of human cortical bone: Comparison of different radioprotective treatment methods. ***Mechanical Behavior of Biomedical Materials***. **61**, pp 475-483.
- (2016) Alavi F., Behraves A.H., Mirzaei M. Effect of temperature on the fracture mechanism of wood–plastic composites in situ. ***Journal of Thermoplastic Composite Materials***. **29(1)**.
- (2015) Mirzaei M., Torkaman Asadi M.J., Akbari R. On vibrational behavior of pulse detonation engines, ***Aerospace Science and Technology***. **47**, pp 177-190.
- (2015) Mirzaei M., Keshavarzian M., AlaviF., Amiri P., Samiezadeh S. QCT-based failure analysis of proximal femurs under various loading orientations, ***Medical & Biological Engineering & Computing***. **53 (6)**, 477-486.
- (2015) Mirzaei M., Najafi M., Niasari H. Experimental and numerical analysis of dynamic rupture of steel pipes under internal high-speed moving pressures, ***International Journal of Impact Engineering***. **85**, pp 27-36.
- (2015) Alavi F., Behraves A.H., Mirzaei M. Mixed-mode cohesive zone modeling and damage prediction of irregular-shaped interfaces in wood–plastic composites. ***Composite Interfaces***. **22(7)**, pp 651-662.
- (2014) Mirzaei M., Keshavarzian M., Naeini V. Analysis of strength and failure pattern of human proximal femur using quantitative computed tomography (QCT)-based finite element method, ***Bone***. **64C**, pp108-114.
<http://dx.doi.org/10.1016/j.bone.2014.04.007>

(2013) Mirzaei M., Malekan M., Sheibani E. Failure analysis and finite element simulation of deformation and fracture of an exploded CNG fuel tank, **Engineering Failure Analysis**. Volume 30, pp. 91-98. <http://dx.doi.org/10.1016/j.engfailanal.2013.01.015>

(2013) Alavi F., Behravesht A.H., Mirzaei M. In-situ observation of fracture mechanism of wood-plastic composites in tension. **Composite Interfaces**, 20(3), pp. 211-220.

(2012) Mirzaei M. Vibrational response of thin tubes to sequential moving pressures. **International Journal of Mechanical Sciences**, 59, pp. 44-54. <http://dx.doi.org/10.1016/j.ijmecsci.2012.03.002>

(2012) Mirzaei M., Samiezadeh S., Khodadadi A., Ghazavi M. Finite element prediction and experimental verification of the failure pattern of proximal femur using Quantitative Computed Tomography Images. *Waset*.

(2009) Mirzaei M., Harandi A., Karimi R. Finite element simulation of deformation and fracture of an exploded gas cylinder. **Engineering Failure Analysis** 2009;16(5):1607-1615.

(2009) Mirzaei M., Zeinali A., Razmjoo A., Nazemi M. On prediction of the strength levels and failure patterns of human vertebrae using quantitative computed tomography (QCT)-based finite element method. **Journal of Biomechanics**. 2009; Doi:10.1016/j.jbiomech.2009.04.042.

(2008) Mirzaei M. On amplification of stress waves in cylindrical tubes under internal dynamic loading. **International Journal of Mechanical Sciences** 2008;50(8):1292-1303.

(2008) Mirzaei M. Failure analysis of an exploded gas cylinder, **Engineering Failure Analysis** 2008;15(7):820-834.

(2008) Salemi A., Abdollah-Zadeh A, Mirzaei M., Assadi H. A Study on fracture properties of multiphase microstructures of a CrMo steel. **Materials Science and Engineering:A** 2008;Volume 492, Issues 1-2, 45-48.

(2006) Mirzaei M., Biglari H., Salavatian M. Analytical and numerical modeling of the transient elasto-dynamic response of a cylindrical tube to internal gaseous detonation, **International Journal of Pressure Vessels and Piping**. 2006;83(7):531-539.

(2006) Mazaheri K., Mirzaei M., Biglari H. Transient dynamic response of tubes to internal detonation loading. **Journal of Sound and Vibration**, 2006;297, pp. 106-122.

(2005) Mirzaei M., Mazaheri K., Biglari H. Analytical modeling of the elastic response of tubes to internal detonation loading. **International Journal of Pressure Vessels and Piping**, 2005;82(12):883-895.

Reviewer of

- **Engineering Fracture Mechanics**
- **Journal of Biomechanics**
- **Engineering Failure Analysis**
- **Journal of Applied Mathematical Modeling**
- **Thin-Walled Structures**
- **Journal of Mechanical Engineering**
- **European Journal of Mechanics A/Solids**
- **European Radiology**

List of publications

Journals:		Conference Proceedings:
Allaveisi F., Mirzaei M. Effects of high-dose gamma irradiation on tensile properties of human cortical bone: Comparison of different radioprotective treatment methods. <i>Mechanical Behavior of Biomedical Materials</i> . 2016, 61, pp 475-483.		Naeini V, Motlagh PA, Mirzaei M. Failure Load and Pattern Prediction for the Proximal Femur using Linear Finite Element Method. In: Proceedings of the 23rd Annual International Conference on Mechanical Engineering, ISME 2015. Iran.
Alavi F., Behraves A.H., Mirzaei M. Effect of temperature on the fracture mechanism of wood-plastic composites in situ. <i>Journal of Thermoplastic Composite Materials</i> . 2016, 29(1).		Motlagh PA, Naeini V, Mirzaei M. Investigation of the stiffness of human femur under different loading orientation. In: Proceedings of the 23rd Annual International Conference on Mechanical Engineering, ISME 2015. Iran.
Mirzaei M., Torkaman Asadi M.J., Akbari R. On vibrational behavior of pulse detonation engines, <i>Aerospace Science and Technology</i> . 2015, 47, pp 177-190.		Mirzaei M., Samiezadeh S., Khodadadi A., Ghazavi M.R., Finite element prediction and experimental verification of the failure pattern of proximal femur using Quantitative Computed Tomography Images. In: Proceedings of the international conference on biomechanics and biomedical engineering, Copenhagen, Denmark, 2012, pp 111-117.
Mirzaei M., Keshavarzian M., Alavi F., Amiri P., Samiezadeh S. QCT-based failure analysis of proximal femurs under various loading orientations, <i>Medical & biological engineering & computing</i> . 2015, 53 (6), 477-486		Hajian M., Mirzaei M. Fatigue life assessment for the composite spar of an unmanned airplane. In: Proceedings of the 15th International Conference on Mechanical Engineering, 15-17 May 2007, Tehran, Iran.
Mirzaei M., Najafi M., Niasari H. Experimental and numerical analysis of dynamic rupture of steel pipes under internal high-speed moving pressures, <i>International Journal of Impact Engineering</i> . 2015, 85, pp 27-36.		Kehsavarz A., Mirzaei M. Modeling of elastoplastic crack growth using the extended finite element method (XFEM). In: Proceedings of the 15th International Conference on Mechanical Engineering, 15-17 May 2007, Tehran, Iran.
Alavi F., Behraves A.H., Mirzaei M. Mixed-mode cohesive zone modeling and damage prediction of irregular-shaped interfaces in wood-plastic composites. <i>Composite Interfaces</i> . 2015,		Tabkhi HR, Mirzaei M. Assessment of the remaining life of the girth gear of an industrial ball mill. In: Proceedings of the 15th International Conference on Mechanical

22(7), pp 651-662.		Engineering, 15-17 May 2007, Tehran, Iran.
Mirzaei M., Keshavarzian M., Naeini V. Analysis of strength and failure pattern of human proximal femur using quantitative computed tomography (QCT)-based finite element method, <i>Bone</i> . 64C, 2014, pp108-114. http://dx.doi.org/10.1016/j.bone.2014.04.007		Mirzaei M., Karimi R. Crack Growth Analysis for a Cylindrical Shell under Dynamic Loading. In: Proceedings of the ASME PVP-2006 /11th International Conference on Pressure Vessel technology, ICPVT-11, 23-27 July 2006, Vancouver, Canada.
Mirzaei M., Malekan M., Sheibani E. Failure analysis and finite element simulation of deformation and fracture of an exploded CNG fuel tank, <i>Engineering Failure Analysis</i> . Volume 30, 2013, pp. 91-98. http://dx.doi.org/10.1016/j.engfailanal.2013.01.015		Mirzaei M., Salavatian M., Biglari H., Simulation of Fatigue Crack Growth in a Detonation Tube. In: Proceedings of the ASME PVP-2006 /11th International Conference on Pressure Vessel technology, ICPVT-11, 23-27 July 2006, Vancouver, Canada.
Alavi F., Behravesht A.H., Mirzaei M. In-situ observation of fracture mechanism of wood-plastic composites in tension. <i>Composite Interfaces</i> , 2013, 20(3), pp. 211-220.		Mirzaei M., Mohammad Hosseini H., Azari SH. Finite element assessment of residual stress and distortion for T-Joint-Fillet and Butt-Weld joints using the element birth technique. In: Proceedings of the International Congress on Manufacturing Engineering, TICME2005, 12-15 December 2005, Tehran, Iran.
Mirzaei M. Vibrational response of thin tubes to sequential moving pressures. <i>International Journal of Mechanical Sciences</i> , 59, 2012, pp. 44-54. http://dx.doi.org/10.1016/j.ijmecsci.2012.03.002		Barani A., Rahimi GH, Mirzaei M. Limit load analysis for cracked pipes under internal pressure using the finite element method. In: Proceedings of the 13th International Conference on Mechanical Engineering, May 2005, Tehran, Iran.
Mirzaei M., Samiezadeh S., Khodadadi A., Ghazavi M. Finite element prediction and experimental verification of the failure pattern of proximal femur using Quantitative Computed Tomography Images. 2012, http://www.waset.org/journals/waset/v66/v66-22.pdf		Biglari H., Mazaheri K., Mirzaei M. Investigation of the structural response of a detonation tube using LSDYNA. In: Proceedings of the 13th International Conference on Mechanical Engineering, May 2005, Tehran, Iran.

<p>Mirzaei M., Harandi A., Karimi R. Finite element simulation of deformation and fracture of an exploded gas cylinder. <i>Engineering Failure Analysis</i> 2009;16(5):1607-1615.</p>		<p>Mirzaei M., Seifi R. Computation of residual stresses due to Multi-Pass welding of steel tubes. In: Proceedings of the 12th International Conference on Mechanical Engineering, 18-20 May 2004, Tehran, Iran.</p>
<p>Mirzaei M., Zeinali A., Razmjoo A., Nazemi M. On prediction of the strength levels and failure patterns of human vertebrae using quantitative computed tomography (QCT)-based finite element method. <i>Journal of Biomechanics</i>.2009; Doi:10.1016/j.jbiomech.2009.04.042</p>		<p>Mirzaei M., Seifi R., Evaluation of the J-Integral in the residual stress fields due to welding. In: Proceedings of the 12th International Conference on Mechanical Engineering, 18-20 May 2004, Tehran, Iran.</p>
<p>Naraghian E., Mirzaei M. Stress analysis and life assessment of spot weld joints. <i>Modares Thechnical and Engineering Journal</i> 2008, No 32:33-45</p>		<p>Mirzaei M.,Seifi R. Finite element evaluation of the J-Integral in residual stress fields. In: Proceedings of the 10th International Conference on Pressure Vessel Technology, ICPVT-10, July 7-10, 2003, Vienna, Austria.</p>
<p>Mirzaei M. On amplification of stress waves in cylindrical tubes under internal dynamic loading. <i>International Journal of Mechanical Sciences</i> 2008;50(8):1292-1303.</p>		<p>Mirzaei M., Karimi R. Stress analysis and life assessment of a gas turbine blade. In: Proceedings of the 10th International Congress of Fracture, (ICF10) USA.</p>
<p>Mirzaei M., Failure analysis of an exploded gas cylinder, <i>Engineering Failure Analysis</i> 2008;15(7):820-834.</p>		<p>Mirzaei M., Razmjoo A., Pourkamali A. Failure analysis of the girth gear of an industrial Ball Mill. In: Proceedings of the 10th International Congress of Fracture, (ICF10) USA.</p>

<p>Salemi A., Abdollah-Zadeh A, Mirzaei M., Assadi H. A Study on fracture properties of multiphase microstructures of a CrMo steel. <i>Materials Science and Engineering:A</i> 2008;Volume 492, Issues 1-2, 45-48.</p>		<p>Peersamadi T., Mirzaei M. Residual stress assessment in weldments using the finite element method. In: Proceedings of the Fourth International Mechanical Engineering Conference, May 2000, Tehran, Iran.</p>
<p>Zeinali A., Hashemi B., Akhlaghpur SH., Mirzaei M., Nazemi M. Prediction of the compressive strength of human vertebrae using nonlinear finite element method and quantitative computed tomography data. <i>Iranian Journal of Medical Physics</i>2007;4(16,17) 19-34</p>		<p>Mirzaei M., Sabooni M. Nonlinear elasto-plastic analysis of a reverse-buckling rupture disk. In: Proceedings of the Ninth International Conference on Pressure Vessel Technology, ICPVT-9, Sydney, Australia, 9-14 April 2000.</p>
<p>Mirzaei M.,Biglari H., Salavatian M. Analytical and numerical modeling of the transient elasto-dynamic response of a cylindrical tube to internal gaseous detonation. <i>International Journal of Pressure Vessels and Piping</i>. 2006; 83/7 pp. 531-539.</p>		<p>Mirzaei M., Janbozorgi A., Hoseini S.A. Computation of fracture mechanics parameters for an industrial gas turbine blade. In: Proceedings of the International Conference on Fracture and Damage Mechanics, 27-29 July 1999, Queen Mary and Westfield College, London, UK.</p>
<p>Mazaheri K., Mirzaei M., Biglari H. Transient dynamic response of tubes to internal detonation loading. <i>Journal of Sound and Vibration</i>, 2006;297, pp. 106-122.</p>		<p>Mirzaei M., Shariati M. Some considerations on Rigid Insert crack closure model and measurement technique. In: Proceedings of the International Conference on Fracture and Damage Mechanics, 27-29 July 1999, Queen Mary and Westfield College, London, UK.</p>
<p>Mirzaei M., Pourkamali A. A combined Node-Enrichment scheme for modeling 2D cracks in extended finite element method. <i>Amirkabir Journal of Science & Technology</i>, 2005;Vol. 15, No.60-1, 47-67.</p>		<p>Janbozorgi A., Mirzaei M. Stress analysis of a gas turbine blade based on fracture mechanics. In: Proceedings of the Third International Mechanical Engineering Conference, 18-20 May 1998, Tehran, Iran.</p>
<p>Mirzaei M., Mazaheri K., Biglari H. Analytical modeling of the elastic response of tubes to internal detonation loading. <i>International Journal of Pressure Vessels and Piping</i>, 2005;Vol. 82, No. 12, pp. 883-895.</p>		<p>Poursaeedi E., Mirzaei M. Creep life assessment of an industrial gas turbine blade. In: Proceedings of the Third International Mechanical Engineering Conference, 18-20 May 1998, Tehran, Iran.</p>

<p>Mirzaei M., Seifi R. 3D path-independent J-Integral for cracks in residual stress fields. <i>International Journal of Engineering Sciences</i>. Iranian university of science and technology, Special issue, June 2005.</p>		<p>Hoseini S.A., Mirzaei M. Thermal stress analysis of a gas turbine blade. In: Proceedings of the Third International Mechanical Engineering Conference, 18-20 May 1998, Tehran, Iran.</p>
<p>Mirzaei M., Pourkamali A. Application of local coordinates systems in modeling 2D cracks in the extended finite element method. <i>International Journal of Engineering Sciences</i>. Iranian university of science and technology, Special issue, June 2005.</p>		<p>Hoseini S.A., Mirzaei M. Mechanical stress analysis of an industrial gas turbine blade. In: Proceedings of the Third International Mechanical Engineering Conference, 18-20 May 1998, Tehran, Iran.</p>
<p>Mirzaei M., Seifi R., Malek F. Computation of crack parameters in residual stress fields. <i>Modares Technical and Engineering Journal</i>. 2003;No. 12, 1-16.</p>		<p>Seraj M., Mirzaei M. Stress analysis of casing and components of a reinforced pressure vessel. In: Proceedings of the Third International Mechanical Engineering Conference, 18-20 May 1998, Tehran, Iran.</p>
<p>Mirzaei M., Karimi R. Computation of crack growth rate for a gas turbine blade. <i>Modares Technical and Engineering Journal</i>, 2002;No. 6, 51-56.</p>		<p>Mirzaei M., Shariati M., Taheri M. Local fracture toughness assessment of weldments. In: Proceedings of the Eighth International Conference on Pressure Vessels Technology, ICPVT-8, 21-26 July 1996, Montreal, Canada.</p>
<p>Shariati M., Mirzaei M. A new formulation for the Rigid-Insert crack closure model. <i>Iranian Journal of Technical Faculty</i>, Tehran University, 2000;Vol 33, No.3. 15-23</p>		<p>Mirzaei M., Provan J.W. Analysis and assessment of fatigue crack closure. In: Proceedings of the International Conference on Engineering Application of Mechanics, June 9-12, 1992, Tehran, Iran.</p>
<p>Shariati M., Mirzaei M. Enhancement of the formulation method of a fatigue crack closure model. <i>Iranian Journal of Mechanical Engineering</i>. 1999;No.4. 17-24.</p>		

<p>Mirzaei M. Analytic compliance and stress intensity factor expressions for C(T) specimen. <i>Modares Technical and Engineering Journal</i>, 1996; No. 2, 44-49.</p>		
<p>Mirzaei M., Provan J.W. The effect of crack wake characteristics on fatigue crack closure: Part II-A non-uniform wake study. <i>Journal of Theoretical and Applied Fracture Mechanics</i>, 1993; 18, 185-191.</p>		
<p>Mirzaei M., Provan J.W. The effect of crack wake characteristics on fatigue crack closure: Part I--A crack wake removal study. <i>Journal of Theoretical and Applied Fracture Mechanics</i>, 1993; 18, 179-183.</p>		
<p>Mirzaei M., Provan J.W. A new method for the analysis and assessment of fatigue crack closure. II: Experimental study. <i>Journal of Theoretical and Applied Fracture Mechanics</i>, 1992; 18, 59-63.</p>		
<p>Mirzaei M., Provan J.W. A new method for the analysis and assessment of fatigue crack closure. I: Modeling. <i>Journal of Theoretical and Applied Fracture Mechanics</i>, 1992; 18, 47-58.</p>		
<p>Mirzaei M., Provan J.W. A Fatigue crack closure model and measurement technique. <i>International Journal of Fracture</i>, 1991; 47: R3-R10.</p>		