

Curriculum Vitae

Personal

Name: Osama M. Abuzeid
Date of Birth: March, 28th, 1961
Nationality: Jordanian
Marital Status: Married with three children.
Address: Mechanical Engineering Department,
University of Jordan,
Amman-11942-Jordan,
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Academic Rank

Professor Doctor.

Education

1979: General Secondary Certificate, Altaj-Secondary School, Amman-Jordan.
1984: B.Sc. Degree in Mechanical Engineering, University of Jordan, Amman-Jordan.
1997: Ph.D. Degree in Mechanical Engineering, Politecnico di Torino, Italy.

Academic Deg. Ph.D, Politecnico di Torino, 1997, Italy.

Exact Specialization: Contact Mechanics, Fracture Mechanics, Tribology.

Research Interest: Materials behavior under contact, contact conductance, contact resistance, crack identification, stress corrosion cracking, tensile structure.

Teaching courses:

1) Undergraduate Courses (B.Sc.)

Engineering Drawing and Descriptive Geometry, AutoCAD, Statics, Dynamics, Theory of Machines, Strength of Materials, Machine Design, System Dynamics and Automatic Control Systems, Vibration, Numerical Methods for Engineers, Failure and Fracture Analysis, Matlab, Strength of Materials Lab. Vibration Lab.

2) Graduate Courses (M.Sc. and Ph.D.)

Advanced Solid Mechanics, Continuum Mechanics, Fracture mechanics, and Finite Element Method (Applications using ANSYS).

Publications

1. O.O.Badran, O.M. Abuzeid, H.A.AL-Shoubaki , T.Al-Haddid, and M.Al-Rimawi, (2001): Effect of shot peening on chloride stress corrosion cracking resistance of 304 stainless steel. *Proc. 1st Int. Industrial Engineering Conf.*, Amman, Jordan.
2. Abuzeid, O. (2002): Fractal model of a linear thermoelastic contact between flat rough surfaces based on cantor structure. *Proc. 6th Inter. Conf. Production Engineering and Design for Development*, Cairo, Egypt, pp. 887-903.
3. Dado, M.H.F. and Abuzeid, O. (2003): Coupled transverse and axial vibratory behavior of cracked beam with end mass and rotary inertia, *J. Sound and Vibration*, vol. 261/4 pp 675 – 696.
4. Abuzeid, O.(2003): Linear viscoelastic creep model for the contact of nominal flat surfaces based on fractal geometry: Maxwell type medium, *Dirasat*, vol. 30(1), pp. 22-36.
5. Abuzeid, O.(2003): A linear thermo-visco-elastic creep model for the contact of nominal flat surfaces based on Fractal Geometry: Kelvin-Voigt medium, *Journal Of Quality In Maintenance Engineering*, vol. 9/2, pp 202-216.
6. Abuzeid, O. (2004): A linear viscoelastic creep-contact model of a flat fractal surface: Kelvin-Voigt medium, *Journal of Industrial lubrication and tribology*, vol.56(6), pp. 334-340.
7. Dado, M., Al-sadedr, S. and Abuzeid, O. (2004): Post-buckling behavior of a compliant column with intermediate local bending flexibility. *Int. J. non-linear Mechanics*, vol.39, pp. 1579-1587.
8. Abuzeid, O. and Dado, M.H.F. (2004): Fractal model to predict the crack roughness effect on the local bending compliance of circular shafts. *Int. J. Mechanical Sciences*, vol. 46, pp. 695-702.
9. Hamdan,M.N., Abuzeid, O. and Al-Salaymeh, A. (2004): Beam model for analysis of edge type settlement of unanchored liquid storage tanks, 5th Jordanian International Mechanical Engineering Conference, JIMEC 2004
10. Abuzeid, O. (2006): A viscoelastic creep model for the contact of rough fractal surfaces: Jeffreys' type material, *Proc. 7th Inter. Conf. Production Engineering and Design for Development*, Cairo, Egypt.

11. Hamdan, M.N., Abuzeid, O. and Al-Salaymeh, A. (2007): Assessment of an edge type settlement of above ground liquid storage tanks using a simple beam model, *Journal of Applied Mathematical Modelling*, Vol 31, pp. 2461–2474
12. Abuzeid, O., M. and Eberhard, P. (2007): Linear viscoelastic creep model for the contact of nominal flat surfaces based on fractal geometry: standard linear solid (SLS) material, *ASME Journal of Tribology*, Vol. 129, pp. 461-466
13. Osama M. Abuzeid, and Taher A. Alabed (2007): A Simplified Model to Study the Thermal Contact Relaxation of A Fractal Surface, *The 6th Jordanian International Mechanical Engineering Conference (Jimec'6)*, 22 - 24 October 2007, Amman – Jordan
14. Duwairi, H. M., Abuzeid, O. And Damseh, R.A. (2007): Viscous And Joule Heating Effects Over An Isothermal Cone In Saturated Porous Media, *Jordan Journal of Mechanical and Industrial Engineering JJMIE*, Vol. 1(2), pp. 113-118.
15. Alabed, T.A., Abuzeid, O. M., Mahmoud Barghash (2008): A linear viscoelastic relaxation-contact model of a flat fractal surface: Maxwell type medium, *International Journal of Advanced Manufacturing Technology*, (39): 423-430.
16. Abdul Salam Y. Alsabbagh, Osama M. Abuzeid, and Mohammad Dado (2009): Simplified stress correction factor to study the dynamic behavior of a cracked beam. *Journal of Applied Mathematical Modeling*, (33): 127-139.
17. Osama M. Abuzeid and Taher A. Alabed (2009): Mathematical modeling of the thermal relaxation of nominally flat surfaces in contact using fractal geometry: Maxwell type medium, *Tribology International*, 42(2), pp. 206-212.
18. Al-Huniti, N., Al-Faqs, F. and Abuzeid, O. (2009). Finite Element Dynamic Analysis of Laminated Viscoelastic Structures .7th International Conference on Composite Science and Technology (ICCST/7), January 20-22, 2009, American University of Sharjah, UAE.
19. Naser Al-Huniti, Fadi Al-Faqs and Osama Abu Zaid, (2010). Finite Element Dynamic Analysis of Laminated Viscoelastic Structures, *Applied Composite Materials*, Applied Composite Materials, 17:405–414.
20. Osama M. Abuzeid, Anas N. Al-Rabadi, and Hashem S. Alkhaldi (2010), “Fractal Geometry-Based Hypergeometric Time Series Solution to the Hereditary Thermal Creep Model for the Contact of Rough Surfaces Using the

Kelvin-Voigt Medium,” *Mathematical Problems in Engineering*, vol. 2010, Article ID 652306, 22 pages, 2010. doi:10.1155/2010/652306

21. Osama M. Abuzeid, Anas N. Al-Rabadi, and Hashem S. Alkhaldi, (2011), “Recent Advancements in Fractal Geometric-Based Nonlinear Time Series Solutions to the Micro-Quasistatic Thermoviscoelastic Creep for Rough Surfaces in Contact,” *Mathematical Problems in Engineering*, vol. 2011, Article ID 691270, 29 pages, 2011. doi:10.1155/2011/691270

22. Barghash, M.A., Abuzeid, O.M., Al-Rabadi, A.N. and Jaradat, A. (2011). Petri Nets and Ladder Logic for Fully-Automating and Programmable Logic Control of Semi-Automatic Machines and Systems. *American J. of Engineering and Applied Sciences* 4 (2): 252-264.

23. Osama M. Abuzeid, Hashem S. Alkhaldi, and Peter Eberhard, (2011): A Thermal Creep Model for the Contact of Nominally Flat Surfaces: Jeffreys' Linear Visco-elastic Model, *International Journal of Mechanical Sciences* 53, 910–917.

24. A.N. Al-Rabadi, M.A. Barghash and O.M. Abuzeid, " Intelligent Regulation Using Genetic Algorithm - Based Tuning for the Fuzzy Control of the Switching-Mode Buck Converter". *IAENG International Journal of Computer Science*, 38:4, IJCS_38_4_02.

25. Osama M. Abuzeid, (2012), "Thermal creep model of rough fractal surfaces in contact: viscoelastic standard linear solid", *Industrial Lubrication and Tribology*, Vol. 64 Iss: 4 pp. 208 - 216

26. O.M. Abuzeid and N. Alnuman, "Thermal Contact Conductance of Elastically Deforming Nominally Flat Surfaces Using Fractal Geometry". *Accepted For Publication In Industrial Lubrication And Tribology, and will be included in Issue 6 in 2013.*

Languages

Arabic: Native Language

Italian: Good

English: Very Good

Work Experiences

1984-1990: Maintenance Engineer, Royal Maintenance Corps and Jordan Telecom, Amman-Jordan.

1991-1992: Teaching Assistant, Dept. Mechanical Engineering, University of Jordan.

1998-2004: Assistant Professor, Dept. Mechanical Engineering, University of Jordan.

2004-Now: Associate Professor, Dept. Mechanical Engineering, University of Jordan.

2004-2005: Sabbatical leave, Philadelphia University, Jerash-Jordan

Research Grants:

- June-August 2004 DFG grant for summer research visit in Germany. Host Professor, Prof. Dr.-Ing. Peter Eberhard, and his team are working in the field of "Contact molecular dynamics". My visit was not concentrate only on the establishing of a joint research work in the field of "Contact molecular dynamics" but also to benefit from the ideas and suggestions of the research team of Institute of Engineering and Computational Mechanics, University of Stuttgart.
- June-August 2006 DFG grant for summer research visit in Germany. Host Professor: Prof. Dr.-Ing. Werner Sobek, Institute for Lightweight Structures and Conceptual Design (ILEK), University of Stuttgart. My visit aims at establishing a joint research in the field of "Light Weight Structures" and to benefit from the ideas and suggestions of the research team of ILEK. Furthermore I intended to study the new applications of tempered glass in structural parts of buildings (i.e., posts, beams, and shear walls), and its load-carrying capacity.
- June-August 2007 DFG grant for summer research visit in Germany. Host Professor: Prof. Dr.-Ing. Werner Sobek. Finite Element Analysis of Glass/Polyvinyl Butyral Laminates Subjected to Uniform Pressure (Using ANSYS). We apply a model for stress analysis of such laminates that consists of a three-dimensional finite-element model (using ANSYS) incorporating polymer viscoelasticity and large deformations. The results produced by ANSYS shows a good agreement with an analytical and experimental results conducted by different authors.
- June-August 2008 DFG grant for summer research visit in Germany. Host Professor: Prof. Dr.-Ing. Richard Stroetmann, institute of Steel and Timber Construction of Technische Universität Dresden. The research was established to study the "Stability of Hybrid-constructions out of Steel and fabric Membranes". An appropriate description of the load bearing behaviour of the hybrid-construction is only possible, if the co-action of membrane and primary construction is taken into account. Therefore the special material properties of steel and fabric membrane and the non-linear load-bearing behaviour need to be represented in a finite-element-model (ANSYS).

Faculty For Factory National Project Participation

- 2003: Jordan Shareef Plastic Factory, Dancing Roll Design and Manufacturing, 3 months, July-September. A device for controlling the tension in a material web of a flexographic printing machine is proposed. It includes an adjustably positionable dancer roll coupled to air cylinder. It engages the web at position subsequent to the dryer exit nip rolls and prior to the next nip roll pair. The air cylinder applies a constant force to the dancer roll to maintain contact between the dancer roll and the web. In this manner, the tension in the web is kept substantially constant between the dryer exit nip rolls and the next nip roll pair.
- 2005: MANSOUR Industrial Complex for Glass & Mirrors, Finite Element Computation of Load Bearing Capacity of Connections in Tempered Glass Structures, 3 months, July-September. New applications of tempered glass in structural parts of buildings necessitate a good knowledge of the load-carrying capacity and the lifetime of structural glass components. In the design of high load bearing capacity structures made of tempered flat glass, connections cannot be avoided when large span or high stiffness beams (plates) are considered. The glass plates are studied under two types of loading, its own weight, and the wind load.
- 2009: The Saudi Jordanian Industrial Development Co. (JORDINA), Waste Product (cake) assessment and reduction, 3 months, July-September. The work concerns in the cake product waste reduction in JORDINA. In fact two types of waste were investigated: the visible one, which manifest itself as crumbs and the unseen one, which appear as excessive increase in the weight of the product or the thickness.
- 2010: National Cable and Wire Manufacturing Co. (CABLECO), Development and assessment of the current Maintenance module and procedures in the custom made ERP system for CABELCO and benchmarking to best practice (SAP software), 3 months, July-September. The ERP in CABELCO is a successful in-house oracle based modular software, however it still requires further development to become up to the best practice. CABELCO ERP was developed and upgraded and many missing features in comparison to SAP were added to CABELCO ERP.
- 2011: CROWN MIDDLE EAST CAN CO. LTD., Feasibility study and prototype design for absorption type chiller for air conditioning utilizing waste exhaust temperature, 3 months, July-September. It is possible to trap the heat lost and thereby using it in an absorption refrigeration system to produce a cooling system to cool various areas in the factory goes beyond

50 °C in summer. Therefore a Lithium-Bromide absorption refrigeration system with a capacity of 60000 Btu/hr (5 ton refrigeration) is designed and constructed.

- 2012: Petra Aluminum Company Ltd. Finite Element Analysis of a Glass facades supported by pre-tensioned cable trusses. This work discusses the use of ANSYS for the analysis and design of tension structures, such as cable truss structures under wind and gravity loadings. A model to describe the glass panels working in coordination with the cable truss was proposed. Under the proposed model, a FEM model of the glass panels working in coordination with the cable truss was established. The main purpose of this work is to reproduce the "Edgo Project Tension Cable Structure" performed by a Chinese group for the benefit of "Petra aluminum company Ltd".

References: Upon Request.