

Husam A. Al Qablan

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Education:

- **Ph.D.** in Structural Engineering/**Computational Mechanics**, Civil Eng. Dep., The University of Akron, Akron, Ohio, USA, (Aug. 2003).
Research Title: “**Mechanistic Evaluation of the Georgia Loaded Wheel Tester (GLWT) for Superpave Asphalt Mixtures**”.
- **M.Sc.** in Civil Engineering/ **Structural Engineering**, Jordan University of Science and Technology, Jordan, (Jan. 1999).
Research Title: “**On Coupled Bending and Torsional Vibration of Beams**”.
- **B.Sc.** Civil Engineering/ **Structural Engineering**, Jordan University of Science and Technology Jordan, (June 1996).

Professional Experience:

- **Oct. 2004 – Present:** Associate professor at the Hashemite University, Civil Engineering Department, Zarqa, Jordan
 - Courses Taught:
 - Statics
 - Strength of Materials
 - Structural Analysis II
 - Computer Application in Structural Engineering
 - Reinforced Concrete
 - Reinforced Concrete and Steel Structures for Architectural Student
 - Structural Mechanics
 - Engineering Drawing
- **Aug. 2003 – Jul. 2004: Postdoctoral Research Associate (Computational Methods Group), Advisor:** Prof. A. Saleeb, The University of Akron, Civil Engineering Department, Akron, Ohio, USA.

Acquired Extensive Experiences in

- Advanced **modeling** (in structural and geomechanical engineering) of **pressure** sensitive, **anisotropic**, and **high-temperature** materials (with associated **UMATs** for **ABAQUS** Finite Element program).
- **Long-term cyclic** behavior modeling and simulations for engineering materials.
- **Large** strain and **time-dependent** analysis of **biological** soft tissues, and **composite** materials.

Parts of the above work have been supported by NASA Glenn, Cleveland clinic foundations and Ohio Department of Transportation ODOT.

- **Aug. 2000 – Jul. 2004: Co-instructor** in the following courses at The University of Akron, Civil Engineering Department, Akron, Ohio, USA, (**Instructor:** Prof. A. Saleeb).

- Computer Methods of Structural Analysis (Fall 2001, Fall 2004)
- Structural Stability (Spring 2002, Spring 2004)
Tools and Software Platforms used in this class:
 - **ABAQUS FEA**: For implementation into large-scale simulations of buckling problems of nonlinear initial / boundary-value problems (IVBP).
 - **STABLE FEA**: For implementation into large-scale simulations of buckling problems of nonlinear initial / boundary-value problems (IVBP).
- Advanced Engineering Materials (Fall 2004)
Tools and Software Platforms used in this class:
 - **ABAQUS FEA (UMAT modules)**: For implementation into large-scale simulations (typically using FEA) of nonlinear initial / boundary-value problems (IVBP).
 - **COMPARE** (Optimization-based parameter estimator): For characterization of their materials parameters (constants) from a test matrix of experimental data.
- Jul. 2000 – Aug. 2003: **Graduate Research and Teaching Assistant, Advisor:** Prof. A. Saleeb, The University of Akron, Civil Engineering Department, Akron, Ohio, USA.
- Using a mechanistic rutting model (**multimechanism anisotropic viscoelastoplastic-coupled-to-damage model**) to characterize various types of hot mix asphalt concrete.
 - Extracting rutting model parameters from mechanical tests (uniaxial compression with different strain rates, triaxial compression with different confinement pressures and strain rates, uniaxial compression creep tests with recovery and uniaxial dynamic modulus tests with different frequencies).
 - Studying the anisotropic behavior of the asphalt concrete mixtures.
- Developing **computational tools** for **long-term cyclic** behavior of asphalt concrete mixtures.
 - Present a finite element modeling technique for simulating the GLWT test.
 - Extracting rutting model parameters from the GLWT results.
 - Present a comparison study of numerical (finite element modeling) results and the GLWT results for various types of hot mix asphalt concrete.
- Mechanical interpretations of GLWT and practical recommendations.
 - Studying the mechanistic interpretation of a **contact case between two deformable bodies** (GLWT sample and the pressurized hose).
 - Present a numerical sensitivity study on the effect of varying the following test configurations (vertical wheel load, rate of loading, boundary conditions).
- Produce comprehensive technical reports for research reviews.
- Teaching, grading and preparing exam solutions for the following courses: Statics, Mechanics of Solids, and Theory of Structures.
- Feb. 2000 – Jul. 2000: **Structural Engineer**, Ministry of Public Works, Irbid, Jordan
Analysis and design of office buildings using STAADIII software.
- Feb. 1999 – Jun. 1999: **Structural Engineer**, United Metal Work Co. (UMCO), Jordan
Analysis and design of steel, reinforced concrete structures using STAADIII software.

- Sep. 1996 – Jan. 1999: **Graduate Research and Teaching Assistant**, Jordan University of Science and Technology, Department of Civil Engineering, Irbid, Jordan.
- Teaching, grading and preparing exam solutions for the following courses: Statics, Structural Analysis I, Structural Analysis II, Material Science, Construction Materials, Building Construction, Engineering Economy, and Contract Specification.
- Laboratory supervising and teaching: Material Science Lab, and Construction Materials Lab.

Computer and applied Skills:

- Proficient with computer operating systems and software (Unix and windows based programs) such as,
 - **Finite Element Modeling/Analysis:** ABAQUS (using UMAT in nonlinear analysis), SAP2000, ETABS, SAFE, MARC, ANSYS, STAAD, PATRAN, PAVEMIX, and COMPARE.
 - **Mathematics:** MATHEMATICA, and MATHCAD.
 - **Microsoft Office:** MS-Word, Excel, and Power Point.
 - **Programming Language:** FORTRAN, and MATLAB.
 - **Graphic and Design:** AUTOCAD.
- Writing and editing of proposals, technical papers and reports.

Journal publications:

1. Atef Saleeb, Robert Y. Liang, **Husam Al Qablan**, and Dave Powers “On The Modeling and Characterization of The Viscoelastoplastic Response of Asphalt Concrete Mixtures”, International Journal of Pavements, Volume 3, Number 3, September, 2004, pp.14-27.
2. Saleeb, Atef; Liang, Robert Y; **Qablan, Husam**; Powers, Dave “Numerical Simulation Techniques for HMA Rutting Under Loaded Wheel Tester”, : International Journal of Pavement Engineering, Volume 6, Number 1, March, 2005, pp. 57-66.
3. Numayr, K.; **Qablan, H.** "Effect of Torsion and Warping on the Free Vibration of Sandwich Beams", Mechanics of Composite Materials, Volume 41, Number 2, March 2005, pp. 109-118(10)
4. Faisal Shalabi, **Husam Al Qablan** ,Omar Al-Hattamleh "Elasto-plastic Behavior of Raghadan Tunnel Based on RMR and Hoek–Brown Classifications" Geotechnical and Geological Engineering, Volume 27, Number 2, 2009 pp. 237-248. DOI 10.1007/s10706-008-9225-0
5. Taleb Rousan; Ibrahim Asi; Omar Al-Hattamleh; **Husam Al Qablan** "Performance of Asphalt Mixes Containing RAP" Jordan Journal of Civil Engineering, 2(3), 2008, pp 218-226.
6. **Husam Al Qablan**; Hasan Katkhuda; and Hazim Dwairi "Assessment of the Buckling Behavior of Square Composite Plates with Circular Cutout Subjected to In-Plane Shear" Jordan Journal of Civil Engineering, 3(2), 2009, pp 184-195.
7. Nasim Shatarat ; Samir Al-Sadder; Hasan Katkhuda; **Husam Qablan**; Anis Shatnawi "Behavior of A Rhombus Frame of Nonlinear Elastic Material Under Large Deflection" International Journal of Mechanical Sciences, 51, 2009, pp 166–177.

8. H. Katkhuda; N. Shatarat; **H. Qablan** "Damage Detection at Element Level in Structures with Different Support Conditions" Journal of Applied Sciences, 9 (21), 2009, pp 3906-3911.
9. Omar Al Hattamleh; Faisal AlShalabi; **Husam Al Qablan**; Taleb Al-Rousan "Effect of Grain Crushing and Bedding Plane Inclination on Aqaba Sand Behavior" Bulletin of Engineering Geology and the Environment, 69(1), 2010, pp 41-49. DOI 10.1007/s10064-009-0238-6.
10. **Husam Al Qablan** ; Hazim Dwairi ; Nasim Shatarat; Taleb Rosan; Tamara Al Qablan " Stability Analysis of Composite Panels with Stiffeners and Circular Cutouts" Jordan Journal of Civil Engineering, 4(2), 2010, pp 119-131.
11. **Husam Al Qablan** "Semi-Analytical Buckling Analysis of Stiffened Sandwich Plates" Journal of Applied Sciences, 10 (23), 2010, pp 2978-2988.
12. Luay Fraiwan, Khaldon Lweesy, Rami Oweis, **Husam Al Qablan**, Mamdouh Hasanat "Medical Waste Management Practices in Southern Jordan" International Journal of Environment and Waste Management, Accepted.

Conference publications:

1. Numayr, K., **Al Qablan, H.**, " Free Vibration of Sandwich Beams-Including Torsional and Warping Effects" , International Conference on Composites Engineering, ICCE/8 August 5-11, 2001 Tenerife Island, Spain.
2. Robert Y. Liang, Atef Saleeb, **Husam Al Qablan**, Bilal Abu Alfoul, Dave Powers, and Roger Green "Mechanistic Evaluation of Georgia Loaded Wheel Tester and Its Implications" International Conference on Highway Pavement (IHP) Data, Analysis and Mechanistic Design Applications. 7-10 Sep. 2003. Vol I, pp. 115-130.
3. **H. Al-Qablan**, A. Saleeb and R. Y. Liang " Mechanistic Modeling of Rutting in Asphalt Pavement Analyzer (APA) Tests" GeoShanghai International Conference, Pavement Mechanics and Performance, ASCE, June 6-8, 2006, Shanghai, China, pp. 63-75.
4. S. Al-Sadder, A. Shatnawi, **H. Al-Qablan**, M. Abdel-Jaber, N. Shatarat "Buckling of Stepped Non-Uniform Long Cylindrical Steel Shell Subjected to External Pressure" Proceeding of 6th International Conference, Steel and Aluminium Structures, ICSAS'07, 2007, Oxford Brookes University, pp 665-676.

Memberships:

- Member in the Jordan Engineers Association, since July 1996.