

**UTSA**<sup>®</sup>

MECHANICAL ENGINEERING

**2015-2016 REPORT**



## Access to Excellence

The faculty of the Department of Mechanical Engineering values excellence in teaching, research, and service to the community and the profession. Our students learn to be technically competent and socially responsible, while they acquire a solid background to perform diverse engineering functions; to succeed in graduate education; and acquire life-long learning skills.



## Greetings from the Alamo City!

Dear Colleagues and Friends,

This past year was one of continued growth and success of students and faculty members. Our student enrollment continues to grow with 1200 undergraduate, over 90 Masters and over 40 doctoral students this fall. With the addition of 4 new faculty members (largest hiring in over 20 years), our faculty size has increased to 24 tenured/tenure track faculty members. We successfully completed the ABET review and graduate program review this fall. Our externally sponsored research expenditure reached \$3.5 million for FY2014-2015, and our faculty secured \$3.4 million in new grants in 2016. Our students and faculty have received various recognitions and awards. Please read below or visit our department website for all the exciting news. We look forward to another exciting year.

Have a great year!

**HAI-CHAO HAN, PHD**  
Professor and Department Chair  
Zachry Endowed Chair

## Quick facts

### PROGRAMS

- M.S. IN MECHANICAL ENGINEERING
- OIL & GAS CERTIFICATE PROGRAM
- M.S. IN ADVANCED MANUFACTURING AND ENTERPRISE ENGINEERING
- PH.D. IN MECHANICAL ENGINEERING (joint effort with Southwest Research Institute)
- UNDERGRADUATE ENROLLMENT: 1223
- GRADUATE ENROLLMENT: 98 MASTERS; 42 DOCTORAL

### FACULTY

- 24 T/TT ASSISTANT, ASSOCIATE, AND FULL PROFESSORS
  - 4 FULL-TIME SENIOR LECTURERS
  - 3 ADJOINT PROFESSORS FROM SWRI
- THEY INCLUDE 6 ASME FELLOWS, 1 ASEE FELLOW, 2 AIMBE FELLOWS, 1 AHA FELLOW, AND 1 SME FELLOW.
- ANNUAL RESEARCH EXPENDITURES: \$2.4 MILLION IN FY2016

### PUBLICATIONS

- 38 PEER-REVIEWED JOURNAL PAPERS AND BOOK CHAPTERS IN 2015
- 50 PEER-REVIEWED JOURNAL PAPERS AND BOOK CHAPTERS IN 2016

**FOR MORE INFORMATION VISIT**  
<http://engineering.utsa.edu/me>



## Student News

- We conferred 168 Bachelor's degrees, 32 master's degrees and 4 doctoral degrees in 2014-2015 academic year (14%, 23% and 100% increases respectively).
- Two Senior Design teams won the 1st and 2nd place awards in the Tech Symposiums in fall 2016.
- ME Doctoral Student, Krishnan Krishnaiyer received 1st place in Best Poster Award and 3rd place in Best Paper Award at the IISE conference 9/2016.

## Major Events

- Faculty retreat in May and August 2016
- Advisory Council meeting in September 2016
- The 2nd annual Doctoral Student Research Seminar was held in October 2016
- ABET site visit in October 2016
- Graduate Program Review in November 2016
- Beihang University from Beijing visited and signed collaborative agreement with UTSA on November 30, 2016. The agreement facilitates collaboration in research and student and faculty exchange.
- The first ME Undergraduate luncheon on December 1, 2016
- The 1st faculty (Dr. Wang) led ME Study-abroad program will start in the summer of 2017, hosted by Beihang University in Beijing.

## Awards & News

- Justin Wilkerson and Adel Alaeddini received Air Force Office of Scientific Research (AFOSR) Young Investigator Research Program (YIRP) award 2016
- Harry Millwater awarded the Samuel G. Dawson Endowed Professorship
- Dr. Zhigang Feng was promoted to Associate Professor with tenure in September 2016
- HungDa Wan received IIE Teaching award
- Ender Finol received NIH and AHA grants and research was featured in Texas Public Radio in September 2016
- Dr. Krystal Castillo Wins Best Paper Award at ISERC in March 2016
- James Johnson received "Award of Excellence" from ASTM in December 2016.

## Faculty and Staff



**DR. ADEL ALAEDDINI**  
Assistant Professor  
Industrial and Systems Engineering



**DR. KIRAN BHAGANAGAR**  
Associate Professor  
Wind Energy and Turbulence Modeling



**DR. PRANAV BHOUSULE**  
Assistant Professor  
Robotics



**DR. KRISTEL CASTILLO**  
Assistant Professor  
Supply Chain Modeling



**DR. F. FRANK CHEN**  
Brown Distinguished Chair Professor  
Lean Manufacturing



**DR. BING DONG**  
Associate Professor  
Building Energy



**DR. YUSHENG FENG**  
Professor  
Computational Bioengineering and Biomedicine



**DR. ZHI-GANG FENG**  
Associate Professor  
Thermofluids Modeling



**DR. ENDER FINOL**  
Associate Professor  
Vascular Biomechanics



**DR. WEI GAO**  
Assistant Professor  
Solid Mechanics and Materials



**DR. HAI-CHAO HAN**  
Professor and Dept Chair  
Cardiovascular Biomechanics



**DR. LYLE HOOD**  
Assistant Professor  
Medical Devices



**DR. AMIR KARIMI**  
Professor  
Metastable Thermodynamics



**DR. AMIR JAFARI**  
Assistant Professor  
Robotics and Mechatronics



# Faculty and Staff



**DR. RUIJIE LIU**  
*Associate Professor*  
**Hydraulic Fracturing  
and Geomechanics**



**DR. HUNGDA WAN**  
*Associate Professor*  
**Sustainability of  
Manufacturing Systems**



**JAMES JOHNSON, MBA**  
*Senior Lecturer*  
**Engineering Design**



**SIDNEY CHOCRON, PH.D.**  
*Adjoint Professor*  
**Mechanics & Materials**



**DR. VICTOR MALDONADO**  
*Assistant Professor*  
**Flow Control and  
Sustainable Aviation**



**DR. XIAODU WANG**  
*Professor*  
**Bone Biomechanics**



**ASHOK NEDUNGADI, PH.D.**  
*Senior Lecturer*  
**Advanced Controls**



**CARL F. POPELAR, PH.D.**  
*Adjoint Professor*  
**Fracture Mechanics**



**DR. RANDALL MANTEUFEL**  
*Associate Professor*  
**Energy Conservation**



**DR. JUSTIN WILKERSON**  
*Assistant Professor*  
**Extreme Materials**



**MANUEL J GARCIA, PH.D.**  
*Senior Lecturer*  
**Computational Materials**



**JAMES WALKER, PH.D.**  
*Adjoint Professor*  
**Mechanics & Materials**



**DR. HARRY MILLWATER,**  
*Dawson Endowed Professor  
COE Associate Dean*  
**Mechanics of Materials**



**DR. XIAOWEI ZENG**  
*Assistant Professor*  
**Computational Mechanics**



**JOHN SIMONIS, PH.D.**  
*Senior Lecturer*  
**Engineering Design**



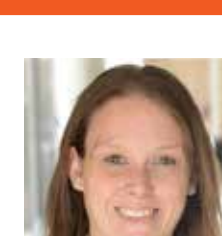
**DR. BRENDY RINCON TROCONIS**  
*Assistant Professor*  
**Corrosion Engineering**



**YESH P. SINGH, PH.D.**  
*Professor Emeritus*  
**Mechanism Design**



**BEN CAMPOS**  
*Administrative Manager*



**CAYLA JIMENEZ, MS**  
*Program Coordinator*



**DR. CAN SAYGIN**  
*Professor*  
**AVP  
Manufacturing Engineering**



**MADHAVRAO "RAO"  
GOVINDARAJU, PH.D.**  
*Senior Lecturer*  
**NanoMaterials**



**MERCEDES GARCIA**  
*Administrative Associate II*



**MARIA DEL CARMEN MONTALVO**  
*Department Fiscal Specialist*

# 2015-2016 MS/Ph.D. Graduates

## FALL 2015

### STUDENT NAME

Tasnia Fatima  
Emma Flores  
Bianca Juarez  
Karan Kurani  
Sabah Mahmood  
Peter Mancuso  
Phani Teja Nutalapati  
Karmjit Sangar  
Haoran Xu

### DEGREE/PROGRAM

MS in Mechanical Engineering  
MS in Advanced Manufacturing & Enterprise Engineering  
MS in Advanced Manufacturing & Enterprise Engineering  
MS in Mechanical Engineering  
MS in Mechanical Engineering  
MS in Mechanical Engineering  
MS in Advanced Manufacturing & Enterprise Engineering  
MS in Mechanical Engineering  
MS in Mechanical Engineering

### ADVISOR

Victor Maldonado  
F. Frank Chen  
Hung-da Wan  
Victor Maldonado  
Victor Maldonado  
Victor Maldonado  
Adel Alaeddini  
Victor Maldonado  
Xiaodu Wang

## SPRING 2016

### STUDENT NAME

Paul Garza  
Nihar Gupta  
Soham Gupta  
Abhishek Harishchandra  
Jonathan Hart  
Seunghee Hong  
Michael Lasch  
Jake Montez  
Jimmy Postwala  
Mario Puente  
Christian Rios  
Moises Rodriguez  
Prithviraj Sarker  
J Welch  
Shah Md Yasin Zaman  
Octavio Zavala Castro  
Mohammad Abed Motasemi  
Mohammad Rahman

### DEGREE/PROGRAM

MS in Mechanical Engineering  
MS in Advanced Manufacturing & Enterprise Engineering  
MS in Mechanical Engineering  
MS in Mechanical Engineering  
MS in Advanced Manufacturing & Enterprise Engineering  
MS in Advanced Manufacturing & Enterprise Engineering  
MS in Mechanical Engineering  
MS in Mechanical Engineering  
MS in Mechanical Engineering  
MS in Advanced Manufacturing & Enterprise Engineering  
MS in Advanced Manufacturing & Enterprise Engineering  
MS in Advanced Manufacturing & Enterprise Engineering  
MS in Mechanical Engineering  
MS in Mechanical Engineering  
MS in Mechanical Engineering  
MS in Advanced Manufacturing & Enterprise Engineering  
Ph.D. in Mechanical Engineering  
Ph.D. in Mechanical Engineering

### ADVISOR

Hai-Chao Han  
Hung-da Wan  
Victor Maldonado  
Victor Maldonado  
Krystal Castillo  
Adel Alaeddini  
Yusheng Feng  
Xiaowei Zeng  
Victor Maldonado  
Hung-da Wan  
F. Frank Chen  
F. Frank Chen  
Victor Maldonado  
Victor Maldonado  
Harry Millwater  
Hung-da Wan  
Adel Alaeddini  
Yusheng Feng

## SUMMER 2016

### STUDENT NAME

Abir Choubey  
Nathan Crosby  
Fuad Hasan  
Edward Hooks  
Li-Qiang Lin  
Eric Liu  
Gaelen McFadden  
Carolina Quintana  
Mohammad Sazzad

### DEGREE/PROGRAM

MS in Mechanical Engineering  
MS in Mechanical Engineering  
MS in Mechanical Engineering  
MS in Mechanical Engineering  
Ph.D. in Mechanical Engineering  
MS in Mechanical Engineering  
MS in Mechanical Engineering  
Ph.D. in Mechanical Engineering  
MS in Mechanical Engineering

### ADVISOR

Victor Maldonado  
Harry Millwater  
Victor Maldonado  
Bing Dong  
Xiaowei Zeng  
Yusheng Feng  
Bing Dong  
Harry Millwater  
Kiran Bhaganagar



## American Society of Mechanical Engineers (ASME)

Members of the UTSA College of Engineering student organization American Society of Mechanical Engineers (ASME), with the help of students from the Society of Automotive Engineering, built two PVC and plastic trucks in support of Christian Senior Services' Meals on Wheels San Antonio's Spirit of Compassion Luncheon. The ASME members not only built the two trucks, but they also assembled one of them during the luncheon to give the audience a visual reminder of how important the Meals on Wheels fleet of vehicles is to the organization. UTSA President Ricardo Romo gave the keynote address at the event, and Nancy E.C. Willaford and Meghan Grace from Pape-Dawson Engineers were recognized for their service to Meals on Wheels. UTSA College of Engineering students are not only making a difference here on campus, but in the local community as well.

## 2016 Faculty Awards

### RESEARCH

- **KRYSTEL CASTILLO** for leading new research grants (\$1248k new/\$649k personal share)
- **HARRY MILLWATER** for leading research expenditure (\$898k)
- **FRANK CHEN & VICTOR MALDONADO** for leading the number of MS students graduated (5 each)
- **HAI-CHAO HAN** for leading peer-reviewed journal publications (9 papers published)
- **XIAODU WANG** for leading paper citations (over 5,000 total/over 3,000 since 2011).

### TEACHING

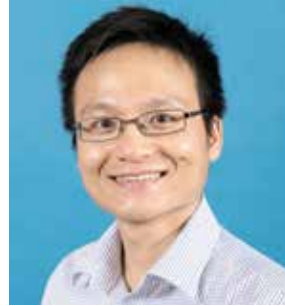
- **MADHAVRAO "RAO" GOVINDARAJU** for teaching largest UG classes (enrollment of 176)
- **PRANAV BHOUNSULE** for teaching largest classes (enrollment 122 with excellent student evaluation of 4.7) among T/TT faculty
- **RANDY MANTEUFEL** for receiving the highest UG core course student evaluation (4.89)
- **XIAOWEI ZENG** for receiving the highest graduate course student evaluation (5.0)\*

### SERVICES

- **HUNGDA WAN** for serving as department Assistant Chair for the last 3 years.



# Welcome! New Faculty and Staff Members



**WEI GAO, PHD**  
Assistant Professor

Ph.D., The University of Texas at Austin

## AREAS OF RESEARCH INTEREST

- Mechanical behavior of materials
- Low dimensional nanomaterials
- Biological & bio-inspired materials & structures
- Computational material design
- Adv materials manufacturing, characterization and testing



**BRENDY RINCON TROCONIS, PHD**  
Assistant Professor

Ph.D., The Ohio State University

## AREAS OF RESEARCH INTEREST

- Stress Corrosion Cracking
- Hydrogen Embrittlement
- Coating Adhesion
- Passivation
- Atmospheric Corrosion
- Corrosion Inhibitors



**LYLE R. HOOD, PHD**  
Assistant Professor

Ph.D., Virginia Tech-Wake Forest

## AREAS OF RESEARCH INTEREST

- Medical Device Design
- Controlled Drug Delivery
- MEMS/NEMS
- Microneedles
- Photothermal Therapies
- Minimally-Invasive Interventions



**MANUEL GARCIA, PHD**  
Senior Lecturer

Ph.D., University of Sydney, Australia

- Fluid Mechanics
- Computational Mechanics



**MERCEDES GARCIA**  
Administrative Associate II



**MARIA DEL CARMEN MONTALVO**  
Department Fiscal Specialist

# 2016 New Research Grants

PI/CO-PI  
PROJECT TITLE  
SPONSOR  
FUNDED DATE  
TOTAL PROJECTED FUNDING

**Alaeddini, Adel**  
Prediction and Optimization in Engineered Residual Stresses (ERS) with Minimum Data  
Clarkson Aerospace Corp  
2016-08-01  
\$100,000.00

PI/CO-PI  
PROJECT TITLE  
SPONSOR  
FUNDED DATE  
TOTAL PROJECTED FUNDING

**Alaeddini, Adel**  
Active Learning in Expensive Testing Design and Optimization  
US Dept of the Air Force  
2016-06-01  
\$371,937.00

PI/CO-PI  
PROJECT TITLE  
SPONSOR  
FUNDED DATE  
TOTAL PROJECTED FUNDING

**Alaeddini, Adel**  
A Novel Probabilistic Methodology for Prediction of Emerging Diseases in Patients with Multiple Chronic Conditions  
Nat'l Inst of Health  
2016-05-04  
\$441,000.00

PI/CO-PI  
PROJECT TITLE  
SPONSOR  
FUNDED DATE  
TOTAL PROJECTED FUNDING

**Potter, Lloyd Alaeddini, Adel**  
Task order for the base year Support Services  
US Dept of Vet Affairs  
2016-09-30  
\$33,116.52

PI/CO-PI  
PROJECT TITLE  
SPONSOR  
FUNDED DATE  
TOTAL PROJECTED FUNDING

**Bhaganagar, Kiran**  
Novel technology for detection and prediction of spreading of air-borne chemicals  
Minority Serving Institutions STEM Research & Development Consortium (MSRDC)  
2016-10-19  
\$105,383.00

PI/CO-PI  
PROJECT TITLE  
SPONSOR  
FUNDED DATE  
TOTAL PROJECTED FUNDING

**Bhounsule, Pranav**  
CRII: RI: Energy Effective and Versatile Bipedal Robots Using Event-Based Switching Between Parameterized Steady-State Controllers  
Nat'l Science Fdn  
2016-03-18  
\$159,024.00

PI/CO-PI  
PROJECT TITLE  
SPONSOR  
FUNDED DATE  
TOTAL PROJECTED FUNDING

**Bhounsule, Pranav**  
Accelerated path teaching for robotic routing using ROS Industrial framework  
Southwest Res Inst  
2016-08-22  
\$12,786.00

PI/CO-PI  
PROJECT TITLE  
SPONSOR  
FUNDED DATE  
TOTAL PROJECTED FUNDING

**Bhounsule, Pranav; Jafari, Amir**  
GREAT: Highly customizable, light weight artificial legs based on embedding actuators and sensors in 3D printed parts.  
UTSA VPR Office  
2016-06-01  
\$20,000.00

PI/CO-PI  
PROJECT TITLE  
SPONSOR  
FUNDED DATE  
TOTAL PROJECTED FUNDING

**Castillo Villar, Krystel; Sharif, Hatim**  
Interdisciplinary Hands-on Research Traineeship and Extension Experiential Learning in Bioenergy/Natural Resources/Economics/Rural  
US Dept of Agriculture  
2016-03-24  
\$275,760.00

# 2016 New Research Grants

PI/CO-PI PROJECT TITLE	<b>Castillo Villar, Krystel</b> Cloud-based Decision Support System Integrating Biomass Quality, Uncertainty and Risk to Optimize the Production of Second-generation Biofuels Oklahoma State University
SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	2016-11-18 \$150,000
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Castillo Villar, Krystel</b> Web-Based Tool to Reduce GHG Emissions from Coal US Env Protection Agency
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	2016-12-20 \$15,000
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Chen, Fengshan; Wan, Hung-Da</b> CAMLs: Education and Mentoring Program for Lean Manufacturing Enterprise Implementation Goodheart Specialty Foods Co
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	2016-01-20 \$62,000.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Taha, Ahmad; Dong, Bing; Gatsis, Nikolaos</b> Dynamic Cyber-Attack Detection and Mitigation for Secure Smart Grids UTSA VPR Office
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	2016-01-26 \$30,000.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Dong, Bing; Vega, Rolando; Shephard, Les</b> Behavior Driven Transactive Energy For Residential Buildings US Dept of Energy
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	2016-02-26 \$37,615.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Dong, Bing; Taha, Ahmad; Gatsis, Nikolaos</b> EAGER: Collaborative Research: Empowering Smart Energy Communities: Connecting Buildings, People, and Power Grids Natl Science Fdn
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	2016-08-05 \$173,420.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Dong, Bing</b> PEP: NSF, Behavior-driven energy usages UTSA VPR Office
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	2016-04-27 \$10,000.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Feng, Yusheng</b> Radical Cystectomy compared with combined Moda Treatment for Muscle Invasive Bladder Cancer: A Pilot Randomized Control Trial Univ of TX HSC at San Antonio 745
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	2016-04-19 \$10,140.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Feng, Yusheng</b> Medical Device Design for Emergency Medicine Univ of TX HSC at San Antonio 745
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	2016-06-21 \$9,600.00

PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Finol, Ender; Dan Simionescu (Clemson) and Satish Muluk (Allegheny Health Network)</b> Mechanistic Justification for Pentagalloyl Glucose Mediated AAA Suppression American Heart Association – Collaborative Sciences Award, No. 16CSA28480006 July 2016 – June 2019 \$750,000
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Millwater, Harry</b> Probabilistic Modeling of Random Variables and K-Solution Developments for General Aviation - Extensions to the SMART DT Software US DOT Federal Aviation Admn 2016-04-18 \$400,000.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Millwater, Harry</b> Probabilistic and Sensitivity Method Development and Application in Life Prediction of Metallic Materials and Structures Clarkson Aerospace Corp 2016-07-19 \$75,000.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Rincon Troconis, Brendy</b> Effect of Passive Film Composition on the Electrochemical Behavior and Cracking of Corrosion Resistant Alloys Utilizing Surface Enhanced Raman Spectroscopy NACE International 2016-07-11 \$30,000.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Saygin, Can; Wan, Hung-Da</b> Incorporating Lean-Six Sigma Methodologies into the Institute for Integration of Medicine and Science Univ of TX HSC at San Antonio 745 2016-07-28 \$50,000.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Guo, Ruyan; Bhalla, Amar; Wan, Hung-Da; Joo, Youngjoong; Binzaid, Shuza; Ramasubramanian, Anand</b> Hybrid 3-D Digital Deposition Platform for Bottom-Up Fabrication of Multicomponent-Multiferroic Composites (DURIP: H3DPlatform) US Dept of the Navy 2016-08-23 \$577,100.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Saygin, Can; Velasquez, Robert; Chen, Fengshan; Wan, Hung-Da</b> Alamo Manufacturing Partnership US Dept of Commerce 2016-10-13 \$101,000.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Wilkerson, Justin</b> A multifunctional materials-by-design approach to ignition desensitization US Dept of Defense 2016-05-12 \$360,000.00
PI/CO-PI PROJECT TITLE SPONSOR FUNDED DATE TOTAL PROJECTED FUNDING	<b>Zeng, Xiaowei</b> GREAT: Advancing Cohesive Interface Zone Model for Biomechanics Applications UTSA VPR Office 2016-06-01 \$20,000.00
<b>TOTAL</b>	<b>\$4,379,881</b>



# 2016 Faculty Publications

- Helm J. E., Alaeddini A., Stauffer J. M., Bretthauer K. M., Skolarus T. A. (2016).** Reducing hospital readmissions by integrating empirical prediction with resource optimization. *Production and Operations Management*, 25(2): 233-257.
- Shirinkam S., Alaeddini A., Millwater H. R. (2016).** On the Application of Multicomplex Algebras in Numerical Integration. *Appl. Math*, 10(1): 1-9.
- Castillo-Villar K. K., Minor-Popocatl H., Webb E. (2016).** Quantifying the Impact of Feedstock Quality on the Design of Bioenergy Supply Chain Networks. *Energies*, 9(3): 203.
- Aboytes-Ojeda M., Castillo-Villar K. K., Yu T. H. E., Boyer C. N., English B. C., Larson J. A., ... Labbé, N. (2016).** A Principal Component Analysis in Switchgrass Chemical Composition. *Energies*, 9(11): 913.
- Le T. B., Kholdi D., Xie H., Dong B., Vega R. E. (2016).** LiDAR-Based Solar Mapping for Distributed Solar Plant Design and Grid Integration in San Antonio, Texas. *Remote Sensing*, 8(3): 247.
- Li Z.X.\*, Mahbobur S.M.\* Vega R., Dong, B. (2016).** A Hierarchical Approach using Machine Learning Methods in Solar PV Energy Production Forecast. *International Journal of Energies*, 9(1): 55. January 2016.
- Dey D., Dong B. (2016).** A probabilistic approach to diagnose faults of air handling units in buildings. *Energy and Buildings*, 130: 177-187.
- Mirakhorli A.\* and Dong B. (2016).** Occupancy behavior based Model Predictive Control for Building Indoor Climate-A Critical Review. *Journal of Energy and Building*. *Energy and Buildings* 129: 499-513.
- Dong B., Li Z.X.\*, Mahbobur S.M.\*, Vega R (2016).** A Hybrid Modeling Approach for Forecasting Future Residential Electricity Consumption. *Journal of Energy and Buildings* Invited Paper, Special Issue on Advances in BEM and Sim. 117: 341-351.
- Wagner A., Dong B., (2016).** Occupancy Behavior in Buildings: Modeling, Simulation and Applications. Editorial for Special Issue. *Energy and Buildings*, 133: 305, December 2016.
- Ranjan R., Feng Y., Chronopolos A. (2016).** Augmented Stabilized and Galerkin Least Squares Formulations, *Journal of Mathematics Research*, 8(6), December 2016.
- Ranjan R., Feng Y., Chronopolos A. (2016).** Computational Algorithms for Solving Spectral/hp Stabilized Incompressible Flow Problems, *Journal of Mathematics Research*, 8(4), August 2016.
- Feng Y., Ranjan R. (2016).** Medical Applications in Bone Remodeling, Wound Healing, Tumor Growth, and Cardiovascular Systems. *Encyclopedia of Applied and Computational Mathematics*, (EACM), Chapter 139, pp874-881, Bjorn Engquist (ed.), Springer.
- Musong S G., Feng ZG, Michaelides EF, Mao S (2016).** Application of a Three-Dimensional Immersed Boundary Method for Free Convection From Single Spheres and Aggregates. *Journal of Fluids Engineering* 138(4): 041304.
- Feng ZG, Alatawi ES, Roig A, Sarikaya C. (2016).** A Resolved Eulerian-Lagrangian Simulation of Fluidization of 1204 Heated Spheres in a Bed With Heat Transfer." *Journal of Fluids Engineering* 138(4): 041305.
- Chen K, Pan M, Feng ZG (2016).** "Modeling of Drug Delivery by A Pump Driven Micro-Needle Array System." *The Open Biomedical Engineering Journal* 10 (2016): 19.
- Michaelides E., & Feng Z. (2016).** Fundamentals of Multiphase Flow. In Efstathios E Michaelides, Clayton T Crowe, John D Schwarzkopf (Ed.), *Multiphase Flow Handbook*, Second Edition. CRC Press Taylor & Francis Group. Chapter 1, pages 1-78.
- Feng Z., & Michaelides E. (2016).** The Immersed Boundary Method. In Efstathios E Michaelides, Clayton T Crowe, John D Schwarzkopf (Ed.), *Multiphase Flow Handbook*, Second Edition. CRC Press Taylor & Francis Group. Chapter 2.4 pages: 126-144.
- de Galarreta S. R., Antón R., Cazon A., Larraona G. S., Finol E. A. (2016).** Anisotropic abdominal aortic aneurysm replicas with biaxial material characterization. *Medical Engineering & Physics*, 38(12): 1505-1512.
- Chandra S., Gnanaruban V., Riveros F., Rodriguez J. F., Finol E. A. (2016).** A Methodology for the Derivation of Unloaded Abdominal Aortic Aneurysm Geometry With Experimental Validation. *Journal of Biomechanical Engineering*, 138(10): 101005.
- Aramburu J., Antón R., Borro D., Rivas A., Larraona G. S., Ramos J. C., Finol E. A. (2016).** A methodology for assessing local bifurcated blood vessel shape variations. *Biomedical Physics & Engineering Express*, 2(1): 015001.
- Crespo R.\*, Gao\* W., (\*co-first author), Xiao P., Wei X., Paci J., Henkelman G., Espinosa, H. (2016).** Engineering the Mechanical Properties of Monolayer Graphene Oxide at the Atomic Level, *The Journal of Physical Chemistry Letters*, 7: 2702-2707.
- Wang P., Gao W., Huang, R. (2016).** Entropic Effects of Thermal Rippling on van der Waals Interactions between Monolayer Graphene and a Rigid Substrate, *Journal of Applied Physics*, 119: 074305.
- Ramachandramoorthy R.\*, Gao\* W., (\*co-first author), Bernal R., Espinosa H. High Strain Rate Tensile Testing of Silver Nanowire - Rate Dependent Brittle-to-ductile Transition. *Nano Letter*, 16, 1, 2016.**
- Chesnutt J.K.W., Han H.C. (2016).** Computational simulation of platelet interactions in the initiation of stent thrombosis due to stent malapposition. *Phys Biol* 13(1):016001. Jan 2016
- Yabluchanskiy A., Ma Y., DeLeon-Pennell K.Y., Altara R., Halade G.V., Voorhees A.P., Nguyen N.T., Jin Y.F., Winniford M.D., Hall M.E., Han H.C., Lindsey, M.L. (2016).** Myocardial Infarction Superimposed on Aging: MMP-9 Deletion Promotes M2 Macrophage Polarization. *J Gerontol A Biol Sci Med Sci*. 71(4):475-83. Apr 2016.
- Mottahedi M., Han H.C. (2016).** Artery buckling analysis using two layered model with collagen dispersion. *J Mech Behavior Biomed Mat* 60: 515-524. (July 2016).
- Xiao Y., Liu Q., Han H.C. (2016).** Buckling reduces eNOS production and stimulates extracellular matrix remodeling in arteries in ex vivo organ culture. *Ann Biomed Eng*. 44(9):2840-50. Sept. 2016.
- Han H.C., Liu Q., Jiang Z.L. (2016).** Mechanical Behavior and Wall Remodeling of Blood Vessels under Axial Twist (Invited review). *J Med Biomech*, 31(4):319-326. Sept 2016
- Alagarsamy K., Fortier A., Kumar N., Mohammad A., Banerjee S., Han H.C., Mishra, R.S. (2016).** Computational modeling of stent implant procedure and comparison of different stent materials. *J Biomed Eng Res*. 1: 101. (Sept. 2016).
- FatemiFar F., Han H.C. (2016).** Effect of axial stretch on lumen collapse of arteries. *J Biomech Eng*. 138(12), 124503 (Nov 03, 2016).
- Alagarsamy K., Fortier A., Komarasamy M., Mishra R., Mohammad A., Banerjee S., Han H.C. (2017).** Mechanical properties of High Entropy Alloy Al<sub>0.1</sub>CoCrFeNi for Peripheral Vascular Stent Application. *Cardiovasc Eng & Tech*. 7(4): 448-454. Dec 2016.
- Hood R. L., Bruno G., Jain P., Anderson J. R., Wolfe T., Quini C. C., ... Grattoni, A. (2016).** Nanochannel implants for minimally-invasive insertion and intratumoral delivery. *Journal of Biomedical Nanotechnology*, 12(10): 1907-1915.
- Filgueira C. S., Nicolov E., Hood R. L., Ballerini A., Garcia-Huidobro J., Lin J. Z., ... Phillips K. J. (2016).** Sustained zero-order delivery of GC-1 from a nanochannel membrane device alleviates metabolic syndrome. *International Journal of Obesity*, 40(11): 1776-1783.
- Jafari A., Quy H., Lida F.(2016).** Determinants for Stiffness Adjustment Mechanisms *Journal of intelligent and Robotic Systems*, June 2016, 82(3): 435-454.
- Jafari A., Jamshidi N. (2016).** Energy Storage Capacity and Force-Stiffness Interaction in Different Stiffness Adjustment Mechanism. *International Journal of Robotics and Automation* 31 (1): 206-4356.
- Chowdhury S., Maldonado V., Tong W., Messac A. (2016).** New modular product-platform-planning approach to design macroscale reconfigurable unmanned aerial vehicles. *Journal of Aircraft*, 53(2): 309-322.
- Maldonado V. (2016).** Active Flow Control of Wind Turbine Blades, *Wind Turbines - Design, Control and Applications*, Dr. Abdel Ghani Aissaoui (Ed.), InTech, DOI: 10.5772/63480. Available from: <http://www.intechopen.com/books/wind-turbines-design-control-and-applications/active-flow-control-of-wind-turbine-blades>
- Dupont W.A., Rashed-Ali H.M., Manteufel R.D., Thomson T.A., Sanciu, L. (2016).** Energy Retrofit of Older Homes in Hot and Humid Climates. *APT Bulletin: The Journal of Preservation Technology*. 47(1): 50-58.
- Millwater H., Wagner D., Baines A., Montoya, A. (2016).** A virtual crack extension method to compute energy release rates using a complex variable finite element method. *Engineering Fracture Mechanics*, 162: 95-111.
- Garza J., Millwater H.R. (2016).** Higher-Order Probabilistic Sensitivity Calculations Using the Multicomplex Score Function Method, *Probabilistic Engineering Mechanics*, 45 (2): 1-12.
- Garza J., Millwater H.R. (2016).** Probabilistic Sensitivity Analysis of the Probability-of-Failure to Probability of Detection Curve Regions, *Int. J. of Pressure Vessels and Piping*, 141: 26-39.
- Bland L., Rincon Troconis B.C., Santucci R., Fitz-Gerald J., Scully J. (2016).** Metallurgical and electrochemical characterization of the corrosion of a Mg-Al-Zn alloy AZ31B-H24 tungsten inert gas weld: Galvanic corrosion between weld zones, *Corrosion*, Vol. 72(10): 1226-1242.
- Harris Z.D., Dolph J.D., Pioszak G.L., Rincon Troconis B.C, Scully J.R., Burns J.T. (2016).** The Effect of Microstructure Variation on the Hydrogen Environment-Assisted Cracking of Monel K-500, *Metallurgical and Materials Transactions A*, 47(7): 3488-3510.
- Yang X., Mostafa A. J., Appleford M., Sun L. W., Wang X. (2016).** Bone formation is affected by matrix advanced glycation end products (AGEs) in vivo. *Calcified tissue international*, 99(4): 373-383.
- Wang X., Xu H., Huang Y., Gu S., Jiang J. X. (2016).** Coupling effect of water and proteoglycans on the in situ toughness of bone. *Journal of Bone and Mineral Research*, 31(5): 1026-1029.
- Samuel J., Park J., Almer J., Wang X.(2016).** Effect of water on nanomechanics of bone is different between tension and compression, *J Mech Behavior Biomed Mat* 57: 128-138.
- Samuel J., Khanna R., Wang X. (2016).** Perspective: Ultrastructural origins of bone fragility. *Osteol Rheumatol Open J*. 1(1): 1-3.
- Wilkerson J. W., Ramesh K. T. (2016).** Unraveling the Anomalous Grain Size Dependence of Cavitation. *Physical Review Letters*, 117(21): 215503.
- Wilkerson J. W., Ramesh K. T. (2016).** A closed-form criterion for dislocation emission in nano-porous materials under arbitrary thermomechanical loading. *Journal of the Mechanics and Physics of Solids* 86: 94-116.
- Becton M., Zeng X., Wang X. (2016).** Mechanical Properties of the Boron Nitride Analog of Graphyne: Scaling Laws and Failure Patterns. *Advanced Engineering Materials*, 18(8): 1444-1452.
- Lee J., Chen Y., Eskandarian A., Lei Y., Zeng X., Xiong L. (2016).** Multiscale Material Modeling: Theories and Applications. *International Journal of Terraspace Science and Engineering*, 8(1): 39-48.
- Liu N., Zeng X., Pidaparti R., Wang X. (2016).** Tough and strong bioinspired nanocomposites with interfacial cross-links. *Nanoscale*, 8(43): 18531-18540.



**UTSA**

MECHANICAL ENGINEERING

One UTSA Circle San Antonio, Texas 78249 | (210) 458-5516 | [engineering.utsa.edu/me](http://engineering.utsa.edu/me)