

160 - Apollo Room

14:30 - 16:00 Poster Session

<p><i>DESS13-0002</i> Supercritical Fluid Carbon Dioxide Deposition of Uniform PbS QD Films for Energy Transfer Studies Joanna Wang - AFRL Gail J. Brown, - AFRL Chien M. Wai - UI</p>	<p><i>DESS13-0029</i> Effect of Shape and Weight of Tuned Liquid Damper on Dampening the Sway of Skyscrapers Due to Wind or Earthquake Vidur Prasad - DRSS</p>	<p><i>DESS13-0035</i> Tablet-Based Surgical Simulation for Fasciotomy Education Christen Wendel - AFRL Tyler Starman - AFRL Craig Wolfer - AFRL Michelle Bricker - AFRL</p>
<p><i>DESS13-0034</i> Very High Power Ultrasonic Additive Manufacturing of Smart Structures Adam Hehr - OSU Joshua Pritchard - OSU Paul Wolcott - OSU Justin Scheidler - OSU Marcelo Dapino - OSU</p>	<p><i>DESS13-0042</i> SATE 2013 Project Emotor Bobby Reynolds - AFRL</p>	<p><i>DESS13-0043</i> Project SMARTcare Jack Chalker - AFRL Monica Leslie - WSU</p>
<p><i>DESS13-0070</i> Internet Drone Based on Additive Manufacturing and the Raspberry Pi Daniel Morrison - AFRL Luke Burnett - AFRL Vitoria Robinson - AFRL Christian Tallet - AFRL</p>	<p><i>DESS13-0087</i> Femtosecond Two-photon Laser-induced Fluorescence (fs-TPLIF) Imaging of Atomic Species in Non-equilibrium Nanosecond Plasmas Jacob Schmidt - SE Waruna Kulatilaka - SE Suresh Roy - SE Kraig Frederickson - OSU Walter Lempert - OSU</p>	

Abbreviations:

AFIT = Air Force Institute of Technology
 AFLCM = Air Force Life Cycle Management Center
 AFOSR = Air Force Office of Scientific Research
 AFRL = Air Force Research Laboratory
 ASU = Arizona State University
 BBHS = Bellbrook High School
 CDU = Cedarville University

CNA = Cradle North America Inc.
 DRSS = Dayton Regional STEM School
 ISSI = Innovative Scientific Solutions Inc.
 ISU = Iowa State University
 NRC = National Research Council
 OSU = The Ohio State University
 PSU = The Pennsylvania State University

RWTH = RWTH Aachen University
 SCC = Sinclair Community College
 SE = Spectral Energies LLC
 SJTU = Shanghai Jiao Tong University
 UC = University of Cincinnati
 UD = University of Dayton
 UDRI = University of Dayton Research Institute

UI = University of Idaho
 ULC = University of La Coruña
 UTC = Universal Technology Corp.
 WSU = Wright State University

Room	156A	156B	156C	157A	157B	163A
Time	SESSION 1 Fluid Dynamics I Chair: Timothy Ombrello AFRL	SESSION 2 Structures / Solid Mechanics I Chair: James Gord AFRL	SESSION 3 Materials I Chair: Jaime Gengler SE	SESSION 4 Thermal Science Chair: Larry Byrd AFRL	SESSION 5 Design & Optimization I Chair: Carl Tilmann AFRL	SESSION 6 Microstructures Chair: Michael List UC
8:30	<i>DESS13-0020</i> Comparison Between Conventional Bell and Dual-Bell Nozzles at Different Nozzle Pressure Ratios Mohamed Mandour - UC Shaaban Abdallah - UC	<i>DESS13-0024</i> A Computational Methodology for Determining the Optimum Re-Peening Time for an Improved Fatigue Life of Laser Peened Aircraft Components Anoop Vasu - WSU Koorosh Gobal - WSU Ramana V Grandhi - WSU	<i>DESS13-0005</i> Synthesis and Characterization of Graphene Oxide/Sulfur Nanocomposite for Li-Ion Batteries Aaron Blake - WSU Hong Huang - WSU	<i>DESS13-0050</i> Analysis of a SOFC Combustor in a SOFC/GT Hybrid Power System Ryan Sinnamon - WSU Rory Roberts - WSU	<i>DESS13-0011</i> Optimal Collision Avoidance Trajectories for Unmanned/Remotely Piloted Aircraft Nate Smith - AFIT Richard G. Cobb - AFIT Scott J. Pierce - AFIT Vincent M. Raska - AFRL	<i>DESS13-0018</i> A Theoretical and Experimental Study of Micro-pitting of Lubricated Point Contacts Sheng Li - WSU
8:50	<i>DESS13-0022</i> System Identification and Validation of the Aeroquad Quadrotor Flight Dynamic Model Andrea Gillis - UC Urvish Patel - UC Wei Wei - UC Kelly Cohen - UC Rebecca Creed - UD	<i>DESS13-0047</i> Thermal and Melt Wear Characterization of Materials in Sliding Contact at High Speeds Christopher Alban - AFIT Anthony Palazotto - AFIT William Baker - AFIT James Rutledge - AFIT	<i>DESS13-0019</i> Mass Transport Analysis of Nano-silver Tape Cast Solder Jared McCoppin - WSU Dan Young - WSU	<i>DESS13-0025</i> Combustion Experiments with High Pressure Well-Stirred Reactor Justin Gross - UDRI Scott Stouffer - UDRI Craig Neuroth - AFIT Dale Shouse - AFRL David Blunck - AFRL	<i>DESS13-0065</i> Engine Design Consideration of Operational Land Use Constraints Wayne Lundberg - AFLCM Tom McDonald - AFLCM	<i>DESS13-0031</i> A Framework for Modeling Microstructural Characterization Errors and Their Effect on the Accuracy of Phantom Grain Ensemble Statistics Gregory Loughnane - WSU Michael Groeber - AFRL Michael Uchic - AFRL Ramana Grandhi - WSU
9:10	<i>DESS13-0082</i> Cell Size Measurements of Detonation in High Pressure Mixtures. Christopher Stevens - ISSI John L. Hoke - ISSI Fred R. Schauer - AFRL	<i>DESS13-0077</i> Comparison of Medium and High Speed Wear Rates Using Abaqus Greg Cavallaro - AFIT Anthony Palazotto - AFIT William Baker - AFIT	<i>DESS13-0021</i> Isothermal Deformation and Modeling of Ti-6Al-4V Vamsi Krishna Vempati - WSU Raghavan Srinivasan - WSU	<i>DESS13-0072</i> Development of an Elevated Pressure Combustion Research Facility for Combustor Operability and Emissions Research Scott Stouffer - UDRI Ray Townsend, Mark Laber, Jerry Grieselhuber, Chris Klingshirm - UDRI Matt Dewitt - UDRI Jacob Diemer, Harold Day, and Richard Zehring - ISSI Edwin Corporan, Dale Shouse - AFRL	<i>DESS13-0076</i> Reliability of Nondestructive Evaluation for Aerospace Applications Jeremy Knopp - WSU Ramana Grandhi - WSU Frank Ciarallo - WSU	<i>DESS13-0009</i> A Computational Study of Solid Oxide Fuel Cells by Linking Microstructure Parameters to Cell Performance Chao Wang - WSU George Huang - WSU Ryan Miller - AFRL
9:30	<i>DESS13-0085</i> Evaluation of the Thorax of Manduca Sexta for Flapping Wing Micro Air Vehicle Applications Brian Cranston - AFIT Anthony Palazotto - AFIT	<i>DESS13-0058</i> Sensor (monitoring Points) Layout Method for Fatigue Design Load Extraction Hao Li - WSU Ha-Rok Bae - WSU		<i>DESS13-0017</i> Combustion Performance and Flame Vortex Insights from Experimental Studies of an Ultra-Compact Combustor Timothy Erdmann - ISSI David Blunck, Dale Shouse, Craig Neuroth, Amy Lynch, Joseph Zelina - AFRL David Burrus - ISSI Daniel Richardson - NRC Andrew Caswell - SE	<i>DESS13-0007</i> Variable Flapping Frequency in Micro Air Vehicles Using a CVT Design Jason Chuang - WSU George Huang - WSU	
9:50	Break					

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	SESSION 7 Fluid Dynamics II Chair: Scott Stouffer UDRI	SESSION 8 Structures / Solid Mechanics II Chair: Anthony Palazotto AFIT	SESSION 9 Materials II Chair: Anil Patnaik WSU	SESSION 10 Additive Manufacturing Chair: Nathan Klingbeil WSU	SESSION 11 Design & Optimization II Chair: James Tancred AFRL	SESSION 12 Diagnostics Chair: Andrew Westman AFRL
10:05	DESS13-0010 Wingtip Vortices from an Exergy-Based Perspective Muhammad Omar Memon - UD Kevin Wabick - UD Aaron Altman - UD Rainer Buffo - RWTH	DESS13-0057 Design of Thermal Structures Using Topology Optimization Josh Deaton - WSU Ramana Grandhi - WSU	DESS13-0067 Characterization of Microstructure with Low Frequency Electromagnetic Techniques Matthew Cherry - WSU Shamachary Sathish - UDRI Adam L. Pilchuk - AFRL Mark P. Blodgett - AFRL	DESS13-0003 A Conceptual Template for Product Technology Transfer Visualization Using 3D Printing Adedeji Badiru - AFIT	DESS13-0062 Design Optimization and Simulation of a Spring Based Regenerative Braking System Joshua Nieman - UD David Myska - UD Andrew Murray - UD	DESS13-0008 Ultraviolet Conversion of a Burst-mode Laser for High-speed Imaging of Turbulent Flows Joseph Miller - NRC James B. Michael and Terrence R. Meyer - ISU Mikhail N. Slipchenko and Sukesh Roy - SE James R. Gord - AFRL
10:25	DESS13-0014 Wing Performance Insight from the Self-Preserved Turbulent Wake Sidaard Gunasekaran - UD Aaron Altman - UD	DESS13-0051 Finite Element Modeling of Stress Wave Propagation Armando DeLeon - AFIT Anthony N. Palazotto - AFIT Michael Kendra - AFOSR	DESS13-0069 Thermal Conductance of Direct Growth Boron Nitride Films Jamie Gengler - SE Andrey Voevodin - AFRL William Mitchel - AFRL	DESS13-0083 Additive Manufacturing: An Integral Part of Education Jack Hunt - BBHS	DESS13-0054 Energy Cost Optimization for System with Both Solar Energy and Conventional Energy Production and Energy Storage, and Real Time Pricing Ata Raziei - UD Kevin P. Hallinan - UD Robert J. Brecha - UD	DESS13-0016 Femtosecond Two-Photon Planar Laser-Induced Fluorescence Imaging of Xenon at 1 KHz Naibo Jiang - SE Waruna D. Kulatilaka - SE Sukesh Roy - SE James R. Gord - AFRL
10:45	DESS13-0015 Identification of Any Aircraft by Its Unique Turbulent Wake Signature Sidaard Gunasekaran - UD Aaron Altman - UD	DESS13-0068 Investigating Model Uncertainty in Nonlinear Aeroelastic Response of Thin Panels Ricardo Perez - UTC Benjamin P. Smarslok - AFRL Marc P. Mignolet - ASU X.Q. Wang - ASU	DESS13-0026 Imaging of Reacting Single-particle Zeolites by Non-linear Optical Microscopy Paul Wrzesinski - SE Mikhail N. Slipchenko - SE Robert M. Rioux - PSU James R. Gord - AFRL Sukesh Roy - SE	DESS13-0032 3D Printing of Smart Structures Using Ultrasonic Additive Manufacturing Paul Wolcott - OSU Justin Scheidler - OSU Adam Hehr - OSU Joshua Pritchard - OSU Marcelo Dupino - OSU	DESS13-0064 National Scale Energy Audits: Prediction of Building Envelope Thermal Resistance and Capacitance Salahaldin Alshatshati - UD Kevin P. Hallinan - UD Robert J. Brecha - UD Jialu Xie - UD	DESS13-0027 Advances in Fiber-based Pulsed-laser Diagnostics for Combustion Measurements in Harsh Environments Paul Hsu - SE Naibo Jiang - SE Amy Lynch - AFRL Sukesh Roy - SE James R. Gord - AFRL
11:05	DESS13-0030 Numerical Investigation on Aerodynamic Characteristics of an Airfoil with a Flexible Tail Zhengkai He - WSU Zifeng Yang - WSU	DESS13-0084 MEMS Displacement-Amplifying Compliant Mechanism Fabricated Using SU-8 Jamshid Moradmand - SCC Andrew Sarangan - UD	DESS13-0080 Failure Analysis and Investigations of Polyurethane (PU) Coating Degradation Narayanan Venkat - UDRI Zongwu Bai - UDRI Thomas Sutter - UDRI Gyaneshwar Tandon, Douglas J. Hufnagle - UDRI Ryan S. Justice - AFRL	DESS13-0036 Control of Ceramic Microstructures Using 'Drop on Demand' Piezoelectric-Driven Inkjet Fabrication Theresa Hill - AFRL Thomas L. Reitz - AFRL Michael Rottmayer - AFRL Hong Huang - WSU	DESS13-0013 Optimal Multistatic Initial Orbit Determination Techniques Using Wideband Receivers Corey Broussard - AFIT Richard Cobb - AFIT	DESS13-0037 Characteristics Analysis and Experimental Study of Tracer Particles for PIV in Supersonic Flow Fang Chen - WSU Hong Liu - SJTU Zifeng Yang - WSU
11:25	DESS13-0059 An Experimental Study on the Clapping Effect of a Two-Wing-Flapper Shih kang Huang - WSU Zifeng Yang - WSU George P Huang - WSU	DESS13-0023 Reliability Based Design Optimization of Long-span Bridges Considering Flutter Ibuki Kusano - WSU Aitor Baldomir - ULC Jose Angel Jurado - ULC Santiago Hernandez - ULC	DESS13-0086 Effects of Different Wetting Layers on the Growth of Smooth Ultra-thin Silver Thin Films Chuan Ni - UD Piyush Shah - UD Andrew Sarangan - UD	DESS13-0073 Integrated Control of Beam-Based Additive Manufacturing Microstructure of IN 718 by Linking Design Parameters and Grain Growth John Thompson - WSU Nathan Klingbeil - WSU	DESS13-0066 The analysis of a Lighter than Air (LTA) Icosahedral Vehicle with a Vacuum Ruben Adorno-Rodriguez - AFIT Anthony Palazotto - AFIT	DESS13-0075 Quenching-Free Detection of Nitric Oxide Via Time-Resolved Parametric Four-Wave Mixing Hans Stauffer - SE Waruna D. Kulatilaka - SE Sukesh Roy - SE James R. Gord - AFRL
11:45 12:15	160 - Apollo Room Lunch and Networking (Visit Buffet and be Seated) Welcome & Opening Remarks: Waruna Kulatilaka, 9 th DESS Chair Nathan Klingbeil, Dean School of Engineering & Computer Science, WSU Keynote Address: "Additive Manufacturing - Disruptions and Realities" Greg Morris, Strategy and Business Development Lead for Additive Technologies at GE Aviation					

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	SESSION 13 CFD Chair: Jonathan Poggie AFRL	SESSION 14 Structures / Solid Mechanics III Chair: Roger Kimmel AFRL	SESSION 15 Undergraduate Research Chair: Christopher Stevens ISSI	SESSION 16 Human Factors / Biomedical Chair: Julie Skipper WSU	SESSION 17 Design & Optimization III Chair: Michael Brown AFRL
14:00	DESS13-0041 Large Eddy Simulations of a Spatially Developing Turbulent Boundary Layer Mbu Waindim - OSU Datta V. Gaitonde - OSU	DESS13-0028 Experimental Uncertainty Quantification and Its Cumulative Effect on the Identification of Geometric Mistuning in Cyclic Structures Geoffrey Cox - AFIT Anthony N. Palazotto - AFIT Jeffrey Brown - AFRL Joseph Beck - AFRL	DESS13-0039 LEGO Mindstorm Maze Solving Based on Heuristics Kelly Cohen - UC Vrishin Soman - UC	DESS13-0044 'Blood Pressure' - Are We Measuring the Pressure of Blood? B. G. Shiva Prasad - WSU Vivekram P. Bellur - Other	DESS13-0012 Fuzzy Logic Based Computationally Effective Approximate Approach to Solving the Travelling Salesman Problem Taylor Okel - UC Kelly Cohen - UC
14:20	DESS13-0049 Correlations Between The Coherent Structures of an Excited Mach 1.3 Jet and the Near Field Pressure Rachelle Speth - OSU Datta V. Gaitonde - OSU	DESS13-0079 Predicting the Wear of High Speed Rocket Sleds Using a Hydrocode (CTH) Lauren Wuertemberger - AFIT Anthony Palazotto - AFIT	DESS13-0055 A 6.8 Gbit/s 90nm CMOS 8-bit Shift Register for Digital Processing Joseph Strzelecki - WSU Saiyu Ren - WSU	DESS13-0053 Statically Equivalent Serial Chain Modeling With Kinect and Wii Balance Board Ali Almandeel - UD Andrew Murray - UD David Myska - UD	DESS13-0040 Application of Heaviside Functions in Continuum Sensitivity Analysis for Structural Shape Design Variables Koorosh Gopal - WSU Ramana V. Grandhi - WSU
14:40	DESS13-0060 Harmonic Balance Demonstration of Diffuser-Fan Interaction Michael List - UC Mark G. Turner - UC	DESS13-0046 Variable Geometry Dies for Polymer Extrusion Kevin Giaier - UD Andrew Murray - UD David Myska - UD	DESS13-0071 Development and Design of an Automotive Mechanical Spring Starter Patrick Joyce - UD Andrew Murray - UD Dave Myska - UD	DESS13-0006 A Computer Design Tool to Tailor the Motion of Low-cost, Four-bar Prosthetic Knees for Individual Patients Thomas Thompson - CDU Erkai Watson - CDU	DESS13-0061 A Framework for Efficiently Generating Local Surrogates of Prescribed Accuracies for Point Searches James Davidson - WSU Ha-Rok Bae - WSU
15:00	DESS13-0045 Fluid Structure Interaction Simulations of Flapping-Wing Micro Air Vehicles Alex Byrd - WSU George Huang - WSU Sunil Kumar Vytla - CNA Ando Yuya - CNA	DESS13-0048 Kinematic Synthesis of Planar, Shape-Changing Rigid Body Mechanisms for Design Profiles with Significant Differences in Arc Length Bingjie Li - UD Andrew P. Murray - UD David H. Myska - UD	DESS13-0078 Cell Phone Battery Charger Senior Design Project Jeff Shortt - CDU	DESS13-0081 Retrospective Evaluation of Volume and Surface Area of Infrapatellar Fat Pad Among Patients with an Acute ACL Injury Bharadwaj Chervuvu - WSU James Tsatalis - WSU Richard Laughlin - WSU Taran Goswami - WSU	DESS13-0052 Utilizing High-Fidelity Information to Update Low-Fidelity Analysis Tools Christopher Fischer - WSU Ramana Grandhi - WSU