





| Room | 156A  | 156B   | 156C   | 157A   | 157B  | 163A   | 163B  |
|------|---|--|--|--|---|--|---|
| Time | <i>SESSION 15:<br/>Materials III</i><br>Chair: Joel Malo-Molina - AFRL  | <i>SESSION 16:<br/>Design &amp; Optimization III</i><br>Chair: Kenneth Fisher - AFIT   | <i>SESSION 17:<br/>Fluid Mechanics III</i><br>Chair: Scott Stouffer - UDRI   | <i>SESSION 18:<br/>Thermal Science</i><br>Chair: Marc Polanka - AFIT   | <i>SESSION 19:<br/>Fluid Mechanics II</i><br>Chair: Ravi Penmetsetsa - AFRL   | <i>SESSION 20:<br/>Diagnostics II</i><br>Chair: James Gord - AFRL  | <i>SESSION 21:<br/>Human Factors/Biomedical</i><br>Chair: Julie Skipper - WSU   |
| 2:00 | <i>DESS12-0057</i><br><b>Aligned Carbon Nanotubes Grown on 3-Dimensional Carbon Foam Structures with Nickel Plating</b><br><br>Betty Quinton - WSU  | <i>DESS12-0058</i><br><b>Design and Prototyping of a 3D Shape Changing Mechanism</b><br><br>Joshua Nieman - UD   | <i>DESS12-0011</i><br><b>The Effect of Laminar Nozzle Exit Boundary Layer Thickness on a Mach 1.3 Jet With and Without Control</b><br><br>Rachelle Speth - OSU<br><i>Datta V. Gaitonde - OSU</i>   | <i>DESS12-0106</i><br><b>Reduction of Rayleigh Losses in an Ultra Compact Combustor</b><br><br>Jacob Wilson - AFIT<br><i>Dr. Marc Polanka - AFIT</i>   | <i>DESS12-0014</i><br><b>Validation Process for Mistuned Rotors</b><br><br>Geoffrey Cox - AFIT<br><i>Anthony N. Palazotto - AFIT</i>  | <i>DESS12-0101</i><br><b>Two-Color OH PLIF Thermometry of Inverse Diffusion Flames in a Vitiated Cross-Flow</b><br><br>Naibo Jiang - SE<br><i>Sukesh Roy - SE</i><br><i>James Gord - AFRL</i>  | <i>DESS12-0023</i><br><b>Comparison of User Experience for Evaluation and Usability Testing during Software Development</b><br><br>Karl Hendrickson - WSU<br><i>Adam Hoenle, Mary Fendley - WSU</i>                             |
| 2:20 | <i>DESS12-0063</i><br><b>Failure Mechanisms of Carbon Nanotube Yarns</b><br><br>Heath Misak - AFIT<br><i>Shankar Mall - AFIT</i>  | <i>DESS12-0019</i><br><b>Analysis and Design of Reconfigurable Linkages for Industrial Tasks</b><br><br>Lin Li - UD<br><i>Andrew Murray, David Myszkowski - UD</i> | <i>DESS12-0048</i><br><b>Predicting Acoustic Wave Generation and Amplification inside a Rectangular Cavity</b><br><br>Ryan Schmit - AFRL<br><i>James Grove - AFRL</i>  | <i>DESS12-0116</i><br><b>Experimental and Computational Analysis of Rayleigh Total Pressure Loss in Ultra-Compact Combustors</b><br><br>Timothy Erdmann - ISSI<br><i>David L. Blunck - AFRL</i><br><i>Dale Shouse - AFRL</i><br><i>Alejandro M. Briones - UDRI</i> | <i>DESS12-0026</i><br><b>Finite Element Analysis of Nanoindentation of M. Sexta Flight Muscle</b><br><br>Boyce Dauby - AFIT<br><i>Anthony N. Palazotto - AFIT</i>                   | <i>DESS12-0071</i><br><b>Application of an Imaging Fourier-Transform Spectrometer to Measure Two-Dimensional Scalar Values in Laminar Flames</b><br><br>Michael Rhoby - AFIT<br><i>Kevin C. Gross - AFIT</i><br><i>David L. Blunck - AFRL</i>  | <i>DESS12-0035</i><br><b>Factors that Influence the Mechanical Response of Degrading Swine Neural Tissue at Low Strain Rates</b><br><br>Sarah Bentil - OSU<br><i>Rebecca Dupaix - OSU</i>                                       |
| 2:40 | <i>DESS12-0089</i><br><b>Preparation of carbon nanotube/carbon nanofiber paper architecture for field emission</b><br><br>Lingchuan Li - UDRI<br><i>Lin Ding, Khalid Lafdi - UD</i><br><i>Lingchuan Li, Matthew Boehle - UDRI</i> | <i>DESS12-0076</i><br><b>Designing slider-crank motions typical of mechanical presses</b><br><br>Ali Almandeel - UD<br><i>Andrew P. Murray - UD</i>                | <i>DESS12-0060</i><br><b>Automated CFD Simulation of Flow over NACA Airfoils</b><br><br>Hongtao Yu - WSU<br><i>George Huang - WSU</i><br><i>David Welsh - CNA</i>  | <i>DESS12-0066</i><br><b>Atmospheric Combustion Experiments with a High Pressure Well Stirred Reactor</b><br><br>Justin Gross - UDRI<br><i>Scott Stouffer - UDRI</i><br><i>David Blunck - AFRL</i>   | <i>DESS12-0042</i><br><b>Prediction of residual stress relaxation in laser peened components using finite element models</b><br><br>Anoop Vasu - WSU<br><i>Ramana Grandhi - WSU</i> | <i>DESS12-0083</i><br><b>Spectral focusing for interference-free coherence dynamics of gas-phase molecules</b><br><br>Paul Wrzesinski - NRC<br><i>James R. Gord - AFRL</i><br><i>Sukesh Roy - SE</i>   | <i>DESS12-0039</i><br><b>“Assessing Multi-Modal Communications on Mental Workload during Supervision of Unmanned Aerial Vehicles”</b><br><br>Sharon Bommer - WSU<br><i>Dr. Mary Fendley - WSU</i>                               |
| 3:00 | <i>DESS12-0102</i><br><b>Mechanical properties of Fuzzy fibers as a Function of CVD growth Conditions</b><br><br>Chao Meng - UD<br><i>K. Lafdi, D. Solomon - UD</i><br><i>L. Li - UDRI</i>  | <i>DESS12-0028</i><br><b>Development of Novel Spring-Based Energy Storage Systems for Motor Vehicle Applications</b><br><br>Jon Lauden - UD                        | <i>DESS12-0109</i><br><b>Fabrication and Flow Characterization of a micro-Laminar Flow Device for use as a Miniature Microbial Fuel Cell</b><br><br>Hao Wang - UD<br><i>Piyush Shah, John Rowe, Andrew Sarangan, Donald Comfort - UD</i> | <i>DESS12-0086</i><br><b>Effect of Variable Properties within a Reacting Boundary Layer with Film Cooling</b><br><br>Nathan Greiner - AFIT<br><i>Jacob Robertson, Marc Polanka - AFIT</i><br><i>David Blunck - AFRL</i>  | <i>DESS12-0053</i><br><b>Structural Design Analysis for the Chromotomography Experiment</b><br><br>Kacey Blunck - AFIT<br><i>Eric D. Swenson - AFIT</i>                             | <i>DESS12-0104</i><br><b>Saturation of vibrational femtosecond CARS mediated by saturation of rotational transition</b><br><br>Anil Patnaik - ISSI<br><i>Sukesh Roy - SE</i><br><i>James R. Gord - AFRL</i>  | <i>DESS12-0082</i><br><b>Biomechanical Evaluation of Proximal Femur Fractures with Cephalomedullary Nailing: Experimental and Analytical Comparisons</b><br><br>Alyssa George-Whitney - WSU<br><i>D.Sc. Tarun Goswami - WSU</i> |
| 3:20 | <i>DESS12-0016</i><br><b>Carbon Nanostructure centered Hybrid Buckypaper for Thermal Management</b><br><br>Muhammad Omar Memon - UD<br><i>Khalid Lafdi - UD</i>   | <i>DESS12-0073</i><br><b>Novel Turbine Engine Concept: The Dual Compression Rotor</b><br><br>Nicholas Grannan - UDRI<br><i>Mark R. Dale - AFRL</i>                 | <i>DESS12-0044</i><br><b>Computational Investigation of Ethanol Feasibility in Solstice Engine</b><br><br>Adam Blake - WSU<br><i>Haibo Dong - WSU</i>  | <i>DESS12-0064</i><br><b>Status Report on the Development of a Three-Dimensional Computer Code for Ground Source Heat Pump Systems</b><br><br>Jim Menart - WSU<br><i>Paul Gross - TMM</i><br><i>Kyle Hughes - SHP</i>  | <i>DESS12-0021</i><br><b>Column Buckling prediction using Finite Elements</b><br><br>Armando DeLeon - AFIT<br><i>Anthony Palazotto - AFIT</i>                                       | <i>DESS12-0110</i><br><b>Direct determination of collisionally broadened carbon dioxide rotational Raman linewidths</b><br><br>Hans Stauffer - SE<br><i>Sukesh Roy, Paul S. Hsu, Naibo Jiang, Waruna D. Kulatilaka - SE</i><br><i>Joseph R. Gord - PU</i><br><i>James R. Gord - AFRL</i> | <i>DESS12-0108</i><br><b>Is there a gold standard for the rotational alignment of the tibial component during total knee replacement?</b><br><br>Erin Hutter - OSU<br><i>Jeffery Granger, Matthew Beal, Robert Siston - OSU</i> |

3:00 - 4:30 Poster Session &amp; Industry Exhibit

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| <p><i>DESS12-0003</i><br/> <b>PbS Nanoparticles: Synthesis, Supercritical Fluid Deposition, and Optical Studies</b><br/>           Joanna Wang - AFRL<br/>           Bruno Ullrich, Gail Brown - AFRL</p> | <p><i>DESS12-0017</i><br/> <b>Self-Biased Low Loss Conductor Featured With Skin Effect Suppression for High Quality RF Passives</b><br/>           Iramnaaz Iramnaaz - WSU<br/>           Yan Zhuang - WSU<br/>           Robert Fitch - AFRL</p> | <p><i>DESS12-0025</i><br/> <b>Selected Through Wafer Macroporous Silicon Fabrication</b><br/>           Bella Yao - WSU<br/>           Yan Zhuang - WSU<br/>           Antonio Crespo - AFRL</p>                              | <p><i>DESS12-0029</i><br/> <b>A Novel Leaky-wave Antenna Design, Implementation, and Demonstration</b><br/>           Jiahui Wang - WSU<br/>           Hyungmin Jeon, Yan Zhuang - WSU</p>                 | <p><i>DESS12-0034</i><br/> <b>Numerical Simulation of turbulent combustion in a spark ignited constant volume combustion chamber</b><br/>           Prasanna Chinnathambi - PU<br/>           M. R. Nalim - PU</p> |
| <p><i>DESS12-0055</i><br/> <b>Testing for Suitability of Display Devices in Virtual Environments</b><br/>           Pamela Cullen - WSU<br/>           Thomas Wischgoll - WSU</p>                         | <p><i>DESS12-0061</i><br/> <b>Evaluation of G forces in Helmet Collision and Concussion Risk</b><br/>           Isiah Kendall - WSU<br/>           D.Sc. Tarun Goswami - WSU</p>  | <p><i>DESS12-0075</i><br/> <b>Identification of System for Quadrotor Handling Qualities</b><br/>           Owen Macmann - UC<br/>           Devon Riddle, Wei Wei, Kelly Cohen - UC<br/>           Mahogany Williams - WU</p> | <p><i>DESS12-0096</i><br/> <b>Use of Advanced Nanomaterials for Water Purification</b><br/>           Tinuade Daboiku - WSU<br/>           Anil Karumuri, Hema Vijwani, Sharmila M. Mukhopadhyay - WSU</p> | <p><i>DESS12-0099</i><br/> <b>Study on techniques for improving Wankel engine performance</b><br/>           Koorosh Gobal - WSU<br/>           Michael Resor, Zach Votaw, Haibo Dong - WSU</p>                    |
| <p><i>DESS12-0105</i><br/> <b>Bicycle Frame Application of Organic Fiber Reinforced Polymers</b><br/>           Jay Kinsinger - CDU</p>   | <p><i>DESS12-0112</i><br/> <b>2012 Cedarville University Solar Boat Team, System Improvements - Mechanical &amp; Electrical</b><br/>           Gerald Brown - CDU<br/>           Timothy Dewhurst, Jay Kinsinger - CDU</p>                        | <p><i>DESS12-0115</i><br/> <b>2012 Cedarville University Solar Boat Poster</b><br/>           David Kemmenoe - CDU<br/>           Caleb Wagner, Gerald Brown, Tim Dewhurst - CDU</p>  | <p><i>DESS12-0117</i><br/> <b>W.O.R.M - Wireless Operating Rescue Mechanism</b><br/>           Monica Leslie - WSU</p>   |  |

Abbreviations:

AFIT = Air Force Institute of Technology  
 AFRL = Air Force Research Laboratory  
 AS = Applied Science Inc.  
 AVT = Avetec Inc.  
 CSU = Central State University  
 CWU = Case Western University  
 DRSC = Dayton Regional Stem Center

EPFL = Ecole Polytechnique Fédéral Lausanne  
 ISSI = Innovative Scientific Solutions Inc.  
 ISU = Iowa State University  
 LISS = Leibniz-Institute for Solid State  
 MLPC = Mound Laser & Photonics Center Inc.  
 MRI = Modus Recte, Inc.  
 MSU = Michigan State University

NRC = National Research Council  
 OSU = The Ohio State University  
 PAID = Petroleum Institute Abu Dhabi  
 SCC = Sinclair Community College  
 SE = Spectral Energies LLC  
 SGC = SynGenics Corp.  
 UC = University of Cincinnati

UCSD = University of California, San Diego  
 UD = University of Dayton  
 UDRI = University of Dayton Research Institute  
 UES = UES Inc.  
 UI = University of Idaho  
 UT = University of Texas  
 UTC = Universal Technology Corp.

UVCC = Upper Valley Career Center  
 UWM = University of Wisconsin-Madison  
 VU = Vanderbilt University  
 WSU = Wright State University