

## ***Annual Dayton Engineering Sciences Symposium***

**From the Symposium's Website:** Sponsored by the Dayton Section of ASME, the symposium is designed to facilitate communication between members of the regional technical community, as well as to provide a forum for students, both undergraduate and graduate, and researchers/practitioners to present their work. The symposium program will include several parallel sessions in the morning and afternoon, a luncheon, an industry exhibition, and a Keynote Address. The Keynote Address will be in the area of Manufacturing, which is the theme of the symposium.

Abstracts are limited to 150 words and must be submitted through this website by October 8th, 2010 (Final Deadline). Presentations are limited to 20 minutes, including time for questions. No written paper is required. The Dayton Section of ASME will confer "Best Presentation" awards at the annual Section Awards Banquet in late Spring, 2011.

To submit an abstract and/or register for the symposium, you must first create and activate an account. To begin, click on "Create an account" and follow the onscreen instructions. Once your account is created, you must activate the account by following the directions in the automated e-mail. If you already have an account, then you may enter your UserID and Password and click "Login".

**The 2010 Conference's Abstract Solicitation:** Abstract submission is now open for the 6th Annual Dayton Engineering Sciences Symposium (DESS) at Wright State University. Sponsored by the Dayton Section of ASME, the symposium is designed to facilitate communication between members of the regional technical community, as well as to provide a forum for students, both undergraduate and graduate, and researchers/practitioners to present their work.

The symposium program will include several parallel sessions in the morning and afternoon, a luncheon, an industry exhibition, and a Keynote Address. The Keynote Address will be in the area of Manufacturing, which is the theme of the symposium. Presentations are limited to 20 minutes, including time for questions. ***No written paper is required.*** The Dayton Section of ASME will confer "Best Presentation" awards at the annual Section Awards Banquet in late Spring, 2011.

**Abstract Submission:** Abstracts are solicited in all areas of engineering science. Specific topic areas are expected to include: Applied Engineering; Biomechanics; Computer Engineering; Controls Science; Design & Optimization; Electronics & Sensors; Engineering Education; Fluid Mechanics; Industrial & Human Factors; Materials & Processing; Nanotechnology; Power, Propulsion, & Energy Systems; Structures & Solid Mechanics; Thermal Sciences; Engineering Innovation; and Undergraduate Design Projects.

Abstracts are limited to 150 words, & must be submitted online through the symposium web site:

<http://www.cs.wright.edu/~asme/DESS.htm>

Registration: All symposium registrations must be processed online through the conference website.

Registration rates are as follows:

General Registration: \$100

ASME/SME Member Registration: \$75

Luncheon and Keynote Address Only Registration: \$30

Graduate Students, unemployed ASME/SME member Registration: \$25

Registration for undergraduate student presenter is Free (Indicate Student Status on Abstract)

**\*ASME/SME Graduate Student Presenter Registration is Free if Abstract Submitted by August 31, 2010**

Luncheon and Keynote Address Only registration includes hot lunch. All other registrations include admission to all technical sessions, conference program, continental breakfast, all day coffee and refreshments, and hot lunch.





Room	156A	156B	156C	157A	157B	163A	163B
Time	<b>15) Design &amp; Optimization</b> Chair: Benjamin Smarslok, AFRL	<b>16) Fluid Dynamics II</b> Chair: Mitch Wolff, WSU	<b>17) Materials II-Nano</b> Chair: Raghavan Srinivasan, WSU	<b>18) Computer Science I</b> Chair: Jia Guo, WSU	<b>19) Combustion</b> Chair: Waruna Kulatilaka, SE	<b>20) Human Factor/Biomed II</b> Chair: Jamie Gengler, SE	<b>21) Energy Management</b> Chair: Kevin Hallinan, UD
<b>1:20</b>	<i>DESS10-0022</i> <b>SORCER Enabled Collaborative Reliability Based Design Optimization</b>  Nagesh Aithal, WSU <i>Ramana V Grandhi, WSU</i>	<i>DESS10-0052</i> <b>CFD Tool for Analysis and Design of Ranque-Hilsch Vortex Tube (RHVT)</b>  Salah Soliman, UC <i>S. Abdallah, UC</i>	<i>DESS10-0021</i> <b>Electron Microscopy Investigation of Carbon Nanotube Growth on Diamond Substrate</b>  Betty Quinton, WSU <i>Varanasi, C.V., ARO</i> <i>Xu. Y., UES</i> <i>Barnes, P. N., AFRL</i> <i>Mukhopadhyay, S.M., WSU</i>	<i>DESS10-0033</i> <b>An Adaptive Filtering Technique for Video Stabilization</b>  Varun Santhaseelan, UD <i>Vijayan Asari, UD</i>	<i>DESS10-0090</i> <b>A Shock Tube Experimental and Kinetic Modeling Study of Ignition Delay Times of Hydrogen Combustion under Fuel-Rich Conditions</b>  Aditya Nagulapalli, UD <i>Giacomo Flora, UD</i> <i>Saumitra Saxena, Moshan S. P. Kahandawala, and Sukh S. Sidhu, UDRI</i>	<i>DESS10-0128</i> <b>Biomechanics of ACL Injury</b>  Kelly Estes, WSU <i>Tarun Goswami, D.Sc., WSU</i>	<i>DESS10-0010</i> <b>Estimating Industrial Building Energy Savings Using Inverse Simulation</b>  Franc Sever, UD <i>Kelly Kissock, UD</i> <i>Dan Brown and Steve Mulqueen, CEE</i>
<b>1:40</b>	<i>DESS10-0069</i> <b>Swarm Optimization for Real-Time Adaptation for Variable Operating Points</b>  Alan Jennings, UD <i>Raul Ordonez, UD</i>	<i>DESS10-0082</i> <b>SOLVCON: New Python-Based Software Framework for Massively Parallelized Hyperbolic PDE Solvers Using the CESE Method</b>  Yung-Yu Chen, OSU <i>Sheng-Tao John Yu, OSU</i>	<i>DESS10-0032</i> <b>Multi-scale Hierarchical Interfaces to suppress Interfacial Delamination in Composites</b>  Anil Kumar Karumuri, WSU <i>Sharmila M. Mukhopadhyay, WSU</i>	<i>DESS10-0035</i> <b>Depth Dependent Nonlinear Enhancement for Visibility Improvement of Hazy Images</b>  Saibabu Arigela, UD <i>Vijayan Asari, UD</i>	<i>DESS10-0106</i> <b>Simulation of Reflected Shock Tube Combustion Experiments Using Multiple Computational Approaches</b>  Giacomo Flora, UD <i>Saumitra Saxena, Moshan S. P. Kahandawala, and Sukh S. Sidhu, UDRI</i>	<i>DESS10-0129</i> <b>Statistical Analysis of Dimensional Anatomy of the Vertebral Body in the Cervical Spine of Chinese Singaporeans and Projection on U.S</b>  Susan Schweitzer, WSU <i>Mary Blackmore, PhD and Tarun Goswami, D.Sc, WSU</i>	<i>DESS10-0068</i> <b>Campus Energy Inventory</b>  Bob Chasnov, CU <i>Mark Gathany, CU</i>
<b>2:00</b>	<i>DESS10-0014</i> <b>Transonic Aeroelastic Analysis of Supersonic Tailless Air Vehicles</b>  Kenneth Gannon, WSU <i>Ramana V. Grandhi, WSU</i>	<i>DESS10-0087</i> <b>Low Pressure Seeder Development for PIV in Large Scale Open Loop Wind Tunnels</b>  Ryan Schmit, AFRL	<i>DESS10-0057</i> <b>Carbon Nanostructure As Thermal Interface Material</b>  Muhammad Omar Memon, UDRI <i>Sylvain Halliot and Khalid Lafdi, UDRI</i>	<i>DESS10-0036</i> <b>A Nonlinear Manifold for Color Restoration</b>  Alex Mathew, UD <i>Ann Theja Alex and Vijayan Asari, UD</i>	<i>DESS10-0095</i> <b>A Shock Tube Ignition Delay Study in the Combustion of Selected Surrogates for Jet Fuels</b>  Giacomo Flora, UD <i>Saumitra Saxena, Moshan S. P. Kahandawala, and Sukh S. Sidhu, UDRI</i>	<i>DESS10-0130</i> <b>Effects of Anthropometric Geometry on the Outcome of Finite Element Models of Vertebral Endplates</b>  Isaac Mabe, WSU <i>Tarun Goswami, D.Sc., WSU</i>	<i>DESS10-0034</i> <b>Tracking Energy Use in University of Dayton Student Housing</b>  Nathan Lammers, UD <i>Franc Sever, Brian Abels, and Patrick Bruketa, UD</i>
<b>2:20</b>	<i>DESS10-0023</i> <b>Quantification of Modeling Uncertainty in Aeroelastic Analyses</b>  Matthew Riley, WSU <i>Ramana V. Grandhi, WSU</i>	<i>DESS10-0102</i> <b>CFD Analysis of NREL Phase VI Wind Turbine Rotor</b>  Yen-Pin Chen, WSU <i>Dr. J. Menart, WSU</i>	<i>DESS10-0058</i> <b>Use of Carbon Nanostructure in Transient Spike Power Applications</b>  Muhammad Omar Memon, UDRI <i>Khalid Latdi, UDRI</i>	<i>DESS10-0037</i> <b>A Projection Based Method for Illumination Correction</b>  Ann Theja Alex, UD <i>Alex Mathew and Vijayan Asari, UD</i>	<i>DESS10-0096</i> <b>Characterization of Vortex-Shedding Transitions Using Proper Orthogonal Decomposition</b>  Stanislav Kostka, SE <i>Sukesh Roy, SE</i> <i>Amy C. Lynch, Barry V. Kiel, and James R. Gord, AFRL</i>	<i>DESS10-0131</i> <b>Hip Implant Stem Interfacial Motion, a Finite Element Analysis Analysis</b>  Mbulelo Makola, WSU <i>Dr. Tarun Goswami, WSU</i>	<i>DESS10-0004</i> <b>GSHX by RCL</b>  Joel Baetens, UD
<b>2:40</b>	<i>DESS10-0071</i> <b>Aeroelastic Control Using Receptance Frequency Response Functions</b>  Laura McDonough, MU <i>Kumar Vikram Singh, MU</i>	<i>DESS10-0078</i> <b>Numerical Investigation of an Elliptic Cone at High Angle of Incidence in Nonequilibrium Flow</b>  Michael Atkinson, UD <i>Jonathan Poggie and Jose Camberos, AFRL</i>	<i>DESS10-0079</i> <b>Electroless Ni Plating of Carbon Nanotubes for SiC Power Modules</b>  Bang-Hung Tsao, UDRI <i>Betty T.Quinton, James D. Scofield, and Paul N. Barnes, AFRL</i> <i>Jacob W. Lawson, UDRI</i>	<i>DESS10-0049</i> <b>Recurrence Time Distribution, Renyi Entropy, and Pattern Discovery</b>  Jianbo Gao, WSU <i>Wen-wen Tung, PU</i> <i>Qian Han, WSU</i>	<i>DESS10-0043</i> <b>Comparison of Numerical and Ground-Test results of the HiFire-2 Combustor</b>  Robert Yentsch, OSU <i>Faure J. Malo-Molina, AFRL</i> <i>Datta V. Gaitonde, OSU</i>	<i>DESS10-0051</i> <b>Position and Weight Distribution of Grocery Bags to Minimize Center of Pressure Displacement</b>  Melissa Taylor, UD <i>Erin Sutton, Julia Schaeffer, Deborah Kinor, and Dr. Kimberly Edginton Bigelow, UD</i>	
<b>3:00</b>	<b>Break</b>	<b>Break</b>	<b>Break</b>	<b>Break</b>	<b>Break</b>	<b>Break</b>	<b>Break</b>

**Abbreviations:**

AFIT: Air Force Institute of Technology  
AFRL: Air Force Research Laboratory  
ARO: Army Research Office  
ASI: Applied Science, Inc  
BHS: Beaver Creek High School

CCH: Cincinnati Children's Hospital  
CEE: Cascade Energy Engineering  
CSU: Central State University  
CU: Clemson University  
CWU: Case Western University  
IAI: Intelligent Automation Inc.

MU: Miami University  
NIOSH: The National Institute for Occupational Safety and Health  
NRL: Naval Research Laboratory  
OAI: Ohio Aerospace Institute  
OSU: The Ohio State University

PIAD: Petroleum Institute, Abu Dhabi, UAE  
PU: Purdue University  
SCC: Sinclair Community College  
SE: Spectral Energies LLC  
SGC: SynGenics Corp

SLU: St. Louis University  
UC: University of Cincinnati  
UCF: University of Central Florida  
UD: University of Dayton  
UDRI: University of Dayton Research Institute

UES: UES Inc.  
UI: University of Idaho  
UM: University of Michigan  
UO: University of Oklahoma  
UWB: University of West Bohemia  
WSU: Wright State University

Room	156A	156B	156C	157A	157B	163A	163B
Time	<b>22) Structures/Damage Prediction</b> Chair: Vipul Ranatunga, MU	<b>23) Fluid-Dynamics III</b> Chair: Roger Kimmel, AFRL	<b>24) Materials III</b> Chair: Feng Liu, WSU	<b>25) Computer Science II</b> Chair: Tzung-Tza Shen, WSU	<b>26) Thermal Sciences</b> Chair: Larry Byrd, AFRL	<b>27) Human Factor/Biomed III</b> Chair: Ravi Penmetsa, WSU	<b>28) Environmental</b> Chair: Kevin Hallinan, UD
3:20	<b>DESS10-0018</b> <b>Cohesive Zone Model Based Multiscale Structural Damage Evolution</b>  Michael Thomas, WSU	<b>DESS10-0005</b> <b>HIFIRE-1 Overview and Preliminary Results</b>  Roger Kimmel, AFRL David Adamczak, AFRL	<b>DESS10-0015</b> <b>Functionalization of Nanomaterials for Biosensor Applications</b>  Elizabeth Maurer, WSU Sharmila Mukhopadhyay, WSU Dr. Saber Hussain, AFRL	<b>DESS10-0083</b> <b>Hierarchical Genetic Algorithms</b>  Jennifer Seitzer, UD	<b>DESS10-0126</b> <b>Numerical Study of Heat Transfer Performance of Two-Layered Microchannel Heat Sinks Using Nanofluids as Coolants for Microelectronics Cooling</b> Sri Priyanka Tunuguntla, UC Urmila Ghia, UC	<b>DESS10-0013</b> <b>Analyzing Range of Motion in Total Hip Arthroplasty</b>  Dishita Patel, WSU Tarun Goswami, D.Sc., WSU	<b>DESS10-0107</b> <b>Toxic Organic Pollutants from Combustion of Printed Circuit Board Laminates</b> Kavya Muddasani, UDRI Moshan Kahandawala, Sukh Sidhu, and Alexander Morgan, UDRI
3:40	<b>DESS10-0011</b> <b>Probability of Fracture Nomographs Using Cohesive Zone Modeling</b>  Venkateswaran Shanmugam, WSU Ravi Penmetsa, WSU Eric Tuegel, AFRL	<b>DESS10-0054</b> <b>Flow and Acoustic Modifications for Military Aircraft Noise Reduction</b> David Munday, UC  Nick Heeb and Ephraim Gutmark, UC Junhui Liu and K. Kailasanath, NRL	<b>DESS10-0110</b> <b>Experimental Studies of Hydrogen Generation from the Aluminum-Water Reaction Using Aluminum Nanoparticles</b>  Faizan Ahmad, UDRI Moshan Kahandawala and Sukh Sidhu, UDRI	<b>DESS10-0066</b> <b>Texture Photogrammetry Surface Reconstruction of Membrane Wings Using Tracking Cameras</b>  Chris Allen, AFIT Alan Jennings and Jonathan Black, AFIT	<b>DESS10-0077</b> <b>Transient Thermal and Structural Analysis of a SiC Power Module Using Ansys Workbench</b>  Katie Sondergelt, UDRI Jacob W. Lawson and Bang-Hung Tsao, UDRI James D. Scofield, AFRL	<b>DESS10-0139</b> <b>Mechanical Comparison of Cadaver Femurs Implanted with Various Intramedullary Nails</b>  Alyssa George Whitney, WSU Chris Gayton, Michael Prayson, Greg Gould, Tarun Goswami, DSc, WSU	<b>DESS10-0097</b> <b>Identification and Quantitation of Hazardous Air Pollutants (HAPs) from Aircraft Engines</b>  David Anneken, UDRI Richard Striebig, Matthew J. DeWitt, and Christopher Klingshirn, UDRI Edwin Corporan, AFRL
4:00	<b>DESS10-0006</b> <b>Application of the Campbell Diagram Concept to Identification of Fatigue Cracks in Bladed Disk Assemblies</b> Josh Gaerke, WSU Joseph C. Slater, WSU Oleg Shiryayev, PIAD	<b>DESS10-0045</b> <b>Numerical Study of a MHD-Heat Shield</b>  Nicholas Bisek, OAI Jonathan Poggie, AFRL Iain Boyd, UM	<b>DESS10-0089</b> <b>High Temperature Stability of Amorphous Si-B-C-N Thin Films</b> Jamie Gengler, SE John Jones, Andrey Voevodin, AFRL Petr Steidl, Jaroslav Vlcek, UWB	<b>DESS10-0050</b> <b>Multiscale Analysis of Biological Signals</b>  Jianbo Gao, WSU Wen-wen Tung, PU Qian Han, WSU	<b>DESS10-0065</b> <b>Thermal and Hydraulic Performance of an Ice Slurry Thermal Energy Storage System</b> Joshua Hartman, UDRI Lanchao Lin, Roger Carr, Richard Harris, UDRI Levi Elston, AFRL	<b>DESS10-0136</b> <b>Constitutive Modeling of Bovine Brain Tissue at High Strain Rates</b>  Bhargava Sista, UC Kumar Vemaganti, UC	<b>DESS10-0108</b> <b>Use of Algae for Bioremediation of Waste Water</b>  Saikumar Chalivendra, UDRI Nilesh Chavada, Moshan Kahandawala, Sukh Sidhu, and Jerome Servaites, UDRI
4:20	<b>DESS10-0059</b> <b>Determining Most Likely Flight Profiles from Aircraft Usage Data for Damage Prognosis</b>  Jia Guo, WSU Benjamin P. Smarslok and Eric J. Tuegel, AFRL Ravi Penmetsa, WSU	<b>DESS10-0044</b> <b>High-Order Numerical Methods for Electrical Discharge Modeling</b>  Jonathan Poggie, AFRL	<b>DESS10-0132</b> <b>Anisotropic Electrical Resistivity Properties of Nanostructured Metallic Thin Films Grown Using Oblique Angle Deposition Technique</b> Piyush Shah, UDRI Andrew Sarangan, Said Elhamri, and Mo Ahoujja, UD Elena Gulians, UDRI	<b>DESS10-0140</b> <b>Scalable Techniques for Semantic Web Reasoning</b>  Raghava Mutharaju, WSU Frederick Maier and Pascal Hitzler, WSU	<b>DESS10-0093</b> <b>Non-Equilibrium Thermodynamics of Coupled Unsteady Power and Thermal Management Systems</b>  Justin DelMar, UD John Doty, UD	<b>DESS10-0138</b> <b>Characterization and Improvement of a Cone-Beam CT Scanner for Quantitative Imaging</b>  Jimish Joshi, Thomas Hangartner	
4:40	<b>DESS10-0055</b> <b>Accounting for Induced Defects Using DARWIN</b>  Ashley Whitney-Rawls, WSU	<b>DESS10-0127</b> <b>Computational Investigation of Laminar Flow of Shear Thinning Non-Newtonian Fluids Through a Circular-to-Rectangular Transition (CRT) Duct</b>  Sowmya Krishnamurthy, UC Urmila Ghia, UC	<b>DESS10-0124</b> <b>Characterization of Bulk Mechanical Complex Modulus of a Thermal Barrier Coating at Various Temperatures Using a Free-Free Beam Apparatus</b> Oliver Easterday, AFIT Anthony Palazotto, Lt. Col. Richard Branam, and William Baker, AFIT Tommy George, AFRL		<b>DESS10-0100</b> <b>Enhancement of Droplet Heat Transfer by Time-Periodic Electric Field</b>  Mohamed Abdelaal, UC Milind Jog, UC	<b>DESS10-0142</b> <b>Hyperspectral Imaging (HSI) to Track Functionalized Gold Nanorods to Target and Identify Specific Biomolecules in a Cellular Environment</b>  Bradley Stacy, AFRL & UD Christin Grabinski, and Saber Hussain, AFRL	
5:00	<b>DESS10-0047</b> <b>Adaptive Multiscale and Nonlinear Methods for Structural Health Monitoring</b>  Jianbo Gao, WSU Wen-wen Tung, PU Qian Han, WSU	<b>DESS10-0137</b> <b>Progress in Modeling Supersonic Boundary Layer Bleed with Computational Fluid Dynamics</b> Albert Morell, UC Awatef Hamed, UC	<b>DESS10-0121</b> <b>Sensor and Membrane Materials Based on Molecularly Imprinted Polymers</b>  Raj Makote, UDRI		<b>DESS10-0017</b> <b>Generic Aircraft Thermal Tip-to-Tail Modeling and Simulation</b>  Scott Eastbourn, WSU Rory Roberts, WSU		