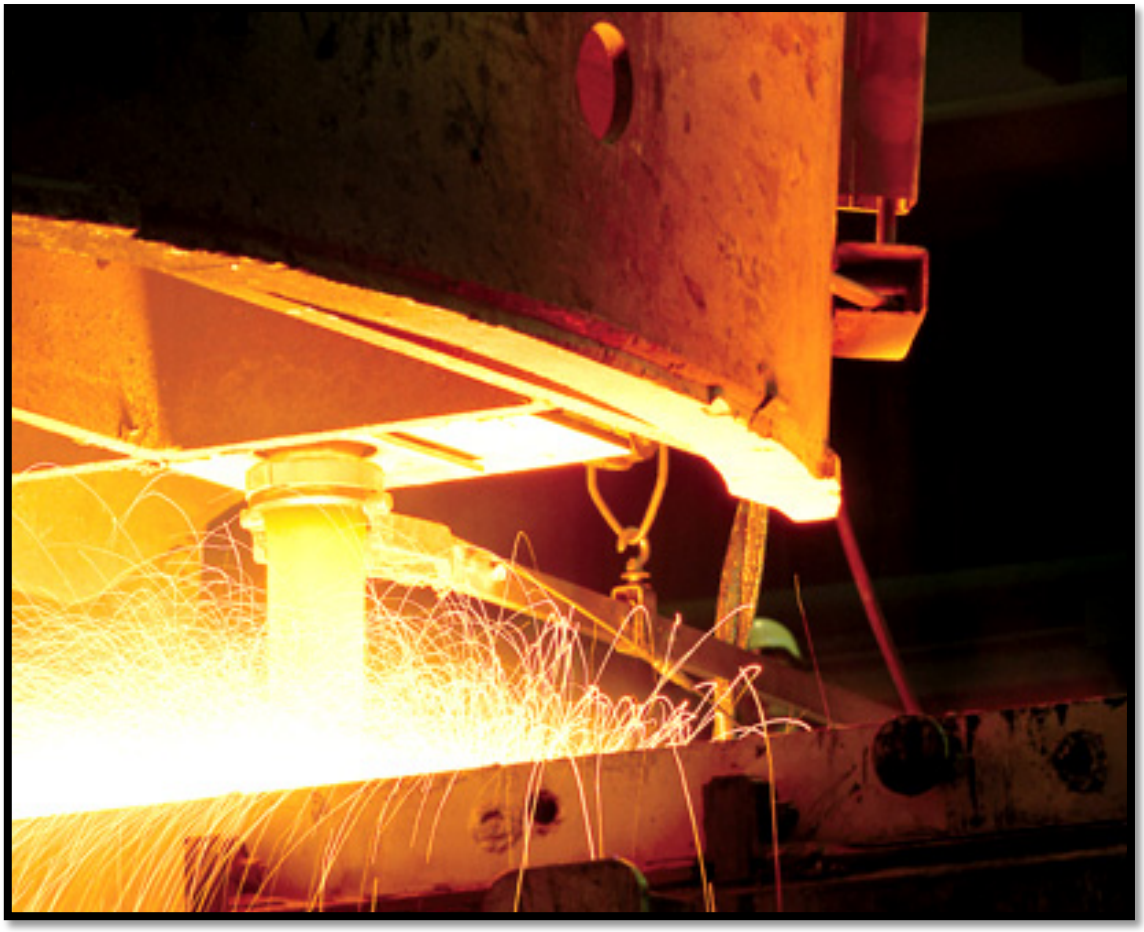
ASME DAYTON SECTION

The 11th Annual Dayton Engineering Sciences Symposium

November 2nd 2015



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WELCOME

On behalf of the Organizing Committee, we would like to welcome you to the 11th Annual Dayton Engineering Sciences Symposium (DESS). Sponsored by the Dayton Section of the American Society of Mechanical Engineers (ASME) and the ASME Student Section of Wright State University, this symposium is expected to facilitate communication between local and regional scientists, engineers and students by providing a forum for presenting the latest technical research, sharpening technical presentation skills, and creating outstanding opportunities for networking.

The theme for this year's symposium is materials research. The keynote presentation "**Why Steel is an Integral Part of Materials Science"** will be delivered by Dr. Johannes Schade, Corporate Manager for Research and Development at AK Steel Corporation. In addition, there will be multiple parallel sessions featuring technical presentations and posters spanning a broad range of topics in science, technology, and engineering.

We hope this symposium serves the Dayton region's professional needs in terms of technology exchange and networking opportunities. Its success would not have been possible without the continued support and active participation of all speakers, session chairs, sponsors, students, faculty, government and industry representatives, organizing committee, and the ASME Dayton Section Executive Board. We thank each and every one of you for your dedicated and committed contributions.

Andrew Caswell
Symposium Chair

Joseph Miller
Symposium Vice-Chair

DESS Committee

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Dayton Engineering Sciences Symposium
Dayton Section of ASME

Wright State University
November 2, 2015

Room	Endeavour 156A	Endeavour 156B	Endeavour 156C	Discovery 163A	Discovery 163B	Atlantis 157A	Atlantis 157B
Time	SESSION 1 **Design and Optimization I** Chair: Dr. Roger Kimmel *AFRL*	SESSION 2 **Fluid Dynamics & CFD I** Chair: Dr. Virginia Ross *AFRL*	SESSION 3 **Materials I** Chair: Dr. Ramana Grandhi *WSU*	SESSION 4 **Structures & Fatigue** Chair: Dr. Anthony Palazotto *AFIT*	SESSION 5 **Biomedical** Chair: Dr. Allison Kinney *UD*	SESSION 6 **Undergraduate Research** Chair: Dr. Darren Holland *CDU*	SESSION 7 **Practice Room**
9:00AM	*DESS15-0075* A Tip-to-Tail Analysis Utilizing a Fuel Cooled HEPS System *Adam Donovan - WSU* *Rory Roberts - WSU* *Mitch Wolff - WSU*	*DESS15-0019* Crossflow Boundary Layer Instability for HIFiRE-5 *Matt Borg - AFRL*	*DESS15-0080* Ion-Assisted Evaporation of Vanadium Dioxide Thin Films *Mengyang Zou - UD* *Chuan Ni - UD* *Andrew Sarangan - UD*	*DESS15-0053* Analysis of a 3D Frame of an Icosahedron *Anthony Palazotto - AFIT* *Capt Mohammed Alghofaily - AFIT* *Anthony Palazotto - AFIT*	*DESS15-0051* Modifying the Limits of Stability Assessment to include a foam surface, age grouping, and nonlinear analysis *Senia Reinert - UD* *Dr. Kimberly Bigelow - UD*	*DESS15-0031* Systems Engineering Approach to Design Improvements of an off-the-shelf Ornithopter *Caleb Bisig - UC* *Darren Werstler - UC* *Tim Arnett - UC* *Dr. Kelly Cohen - UC*	
9:20AM	*DESS15-0083* Boundary Layer Transition Prediction for Hypersonic Vehicle Preliminary Design *Roger Kimmel - AFRL*	*DESS15-0058* Computational Grid Resolution Effects on Cones at Angle of Attack *Matthew Tufts - OAI*	*DESS15-0010* Numerical and Analytical Analysis of Graphene Nanocomposites *Colton Roach - UKY* *Hannah E. Whitlock - UKY* *Y. Charles Lu - UKY*	*DESS15-0082* Design and Structural Analysis Unique Structures under an Internal Vacuum *Brian Cranston - AFIT* *Anthony Palazotto - AFIT*	*DESS15-0015* Objective function choice influences muscle force predictions during human walking *Elijah Kuska - UD* *Dr. Allison L. Kinney - UD*	*DESS15-0070* Design, Build, and Test a Cyclorotor *David Tucker - CDU* *Ben Huffman - CDU* *Dan Merrell - CDU* *Ryan Johnson - CDU* *Tim Kerr,Jonathan McDonald -CDU*	
9:40AM	*DESS15-0020* Physically Informed Surrogate Modeling for Hypersonic Aircraft Life Prediction *Daniel Clark - WSU* *Ha-Rok Bae - WSU* *Ravi Penmetsa - AFRL*	*DESS15-0021* LES Investigation of the Physics of a Twinjet Configuration *Kalyan Goparaju - OSU* *Datta V. Gaitonde - OSU* *Daniel J. Garmann - AFRL*	*DESS15-0044* Relationships between carbon nanotube sheet tensile behavior and physical/microstructural parameters *Jacob Singleton - AFIT* *Heath E. Misak - AFIT* *Shankar Mall - AFIT*	*DESS15-0009* Improved Pre-Strain Method for Generating Goodman Data with Vibration-Based Fatigue Testing *Kevin Knapp - AFIT* *Onome E. Scott-Emuakpor - AFRL* *Tommy Geroge - AFRL* *Casey Holycross - AFRL* *Anthony N. Palazotto - AFIT*	*DESS15-0013* The Effect of Input Parameters on Detrended Fluctuation Analysis of Postural Control Data: Data Length Significantly Affects Results *Melissa Taylor - UD* *Kimberly E. Bigelow - UD* *Jenna Yentes - UNO* *Wiebke S. Diestelkamp - UD* *Allison L. Kinney - UD*	*DESS15-0076* Liquid Nitrogen Cryogenic Heat Exchanger *Nate McGillivray - WSU* *Matt Dassow - WSU* *Paul Dolvin - WSU* *Dr. Rory Roberts - WSU* *Dr. Mitch Wolff - WSU*	
10:00AM	*DESS15-0027* Image Classification of Humans from Infrared Images Using Convolutional Neural Networks *Joseph Cohen - UM* *Anoop Sathyan - UC* *Manish Kumar - UC*	*DESS15-0028* Airplane Jet Wake Trail Turbulence & Pollution *B. G. Shiva Prasad - WSU*	*DESS15-0016* Airflow Sensing and Structural Monitoring with Fuzzy-Fiber Artificial Hair Sensors *Corey Kondash - UTC* *Keith Slinker, Ph.D. - UTC* *Benjamin Dickinson, Ph.D. - AFRL* *Jeffery Baur, Ph.D. - AFRL*	*DESS15-0081* Description of the penalty method utilized by Abaqus when contact occurs *Armando DeLeon - AFIT* *Dr Anthony Palazotto - AFIT*	*DESS15-0034* Fabrication and Testing of a Pulsatile Simulator Incorporating Variable Stiffness Artificial Skins *Jake Miller - MU* *Ian Shelburne - MU* *Nicholas Robinson - MU* *Jeong-Hoi Koo - MU*	*DESS15-0056* Dynamic Thermal Analysis of a Permanent Magnet Generator *Marcus Bracey - WSU* *Mitch Wolff - WSU* *Rory Roberts - WSU*	
10:20AM	Break						

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Room	Endeavour 156A	Endeavour 156B	Endeavour 156C	Discovery 163A	Discovery 163B	Atlantis 157A	Atlantis 157B
	SESSION 8 **Design & Optimization II** Chair: Dr. Lance Chenault *ABDA*	SESSION 9 **Fluid Dynamics & CFD II** Chair: Dr. George Qin *CDU*	SESSION 10 **Materials II** Chair: Dr. Phil Buskohl *AFRL*	SESSION 11 **Laser Diagnostics & Combustion I** Chair: Dr. Brent Rankin *AFRL*	SESSION 12 **Manufacturing** Chair: Dr. Daniel Richardson *SE*	SESSION 13 **Engineering Education** Chair: Dr. Mike List *AFRL*	SESSION 14 **Practice Room**
Time							
10:40AM	*DESS15-0060* Cooperative Control for Missile Evasion *Jason Torf - AFIT* *Ryan Carr - AFIT* *Jason Torf - AFIT* *Dr. Richard Cobb - AFIT*	*DESS15-0024* Investigation of Rectangular Jet Flow Through a Varying Cross-Section Nozzle *Soumyo Sengupta - OSU* *Lionel Agostini - OSU* *Datta V. Gaitonde - OSU*	*DESS15-0072* Transient Creep Analysis of Metals *Sara Mirmasoudi - WSU* *Dr. Anthony Palazotto - AFIT* *Dr. Mitch Wolff - WSU*	*DESS15-0018* High-speed three-dimensional laser-based measurements for combustion applications *Benjamin Halls - SE* *Naibo Jiang - SE* *Sukesh Roy - SE* *Terry R. Meyer - PU* *James R. Gord - AFRL*	*DESS15-0057* Design of Variable-Geometry Polymer Extrusion Dies *Ethan VanTilburg - UD* *Andrew Murray - UD* *David Myszka - UD*	*DESS15-0073* Introducing the World of Engineering and Design to Local Middle and Elementary School Students *Shaquille Tensley - UD* *Paolo Raimondi - UD* *Beth Hart - UD* *Margaret Pinnell - UD* *Laura Bistrek - UD*	
11:00AM	*DESS15-0054* A Hybrid Technique to Rapidly Solve the Intermediate-Target Optimal Control Problem *Clay Humphreys - AFIT* *Richard G. Cobb, PhD - AFIT* *David R. Jacques, PhD - AFIT* *Jonah A. Reeger, PhD - AFIT*	*DESS15-0026* Secondary Flow Structure Studies in a High Lift Low Pressure Turbine Cascade *Philip Bear - WSU* *Christopher Marks - UDRI* *Mitch Wolff - WSU* *Rolf Sondergaard - AFRL*	*DESS15-0033* Dynamic Properties of Additively Manufactured 15-5PH Stainless Steel *Allison Dempsey - AFIT* *David Liu - AFIT* *Anthony Palazotto - AFIT* *Rachel Abrahams - AFRL*	*DESS15-0066* High-repetition-rate volumetric laser diagnostics in combustions *Naibo Jiang - SE* *Sukesh Roy - SE* *Benjamin R Halls - AFRL* *James R Gord - AFRL* *Terrence R Meyer - AFRL*	*DESS15-0084* Power Transfer during Ultrasonic Additive Manufacturing *Marcelo Dapino - OSU* *Adam Hehr - OSU* *Leon Headings - OSU*	*DESS15-0005* Optimization and The Traveling Salesman Problem: Hybrid Algorithms and High School Applications *Marcia Roth - CCHS* *Dustin Hinson - UC* *Anoop Sathyan - UC* *Dr. Jeffrey Kastner - UC* *Dr. Kelly Cohen - UC*	
11:20AM	*DESS15-0022* Topology Optimization of a Penetrating Warhead *William Graves - AFIT* *Captain William Graves, Jr., USMC -* *Dr. Anthony Palazotto - AFIT* *Maj David Liu - AFIT*	*DESS15-0089* Predicted Blade Loading of a Fan Stage in an Inlet Distortion *Dan Reilly - WSU* *Dr. Mitch Wolff - WSU* *Dr. David Johnston - AFRL*	*DESS15-0074* Attaining Fully Equiaxed Microstructure through Process Parameter Control in Additive Manufacturing of Ti-6Al-4V *Sarah Kuntz - WSU* *Dr. Nathan Klingbeil - WSU*	*DESS15-0011* Well Stirred Reactor Emission Studies of Fuel Surrogates *Robert Stachler - UD* *Dr. Joshua S. Heyne - UD* *Dr. Joseph D. Miller, Matthew X. Liu* *Dr. Scott D. Stouffer - UDRI* *Dr. W. Mel Roquemore - AFRL*	*DESS15-0085* Dissimilar Material Joining Using Ultrasonic Additive Manufacturing *Leon Headings - OSU* *Paul J. Wolcott - OSU* *Tianyang Han - OSU* *Marcelo J. Dapino - OSU*	*DESS15-0014* Collaborative Research Experience for Teachers: Inspiring the Next Generation of a Highly-Skilled Workforce in Advanced Manufacturing and Materials *Melissa Taylor - UD* *Leanne Petry - CSU* *Suzanne Franco - WSU* *Ahsan Mian - WSU* *Sandi Preiss - DRSC*	
11:40AM	*DESS15-0079* Transient Modeling of an Advanced Jet Engine *Robert Buettner - WSU* *Dr. Rory Roberts - WSU* *Dr. Mitch Wolff - WSU*	*DESS15-0069* HVLS Fan Design Based on Theoretical Modeling and CFD Simulation *Michael Kuhn - CDU* *David Crosby - CDU* *Benjamin Ingis - CDU* *Dr. George Qin - CDU*	*DESS15-0030* Filament Orientation Derived Static and Dynamic Property Variability in 3D Printed Structures *Andrew Kolonay - WSU* *Kumar Singh - MU* *Fazeel Khan - MU* *Amit Shukla - MU*	*DESS15-0095* Modeling and Simulation of a High-Pressure High-G Ultra Compact Combustor *Brandon Long - UDRI* *Alejandro Briones - UDRI* *Brent Rankin - AFRL*	*DESS15-0046* Profile Assessment of Products Formed by Variable Geometry Extrusion Dies *Anna Swigert - UD* *David Myszka - UD* *Andrew Murray - UD*		
12:00PM	**160 - Apollo Room** Lunch and Networking (Visit Buffet and be Seated)						
12:30PM	**Welcome & Opening Remarks:** Drew Caswell, *11th DESS Chair* **Keynote Address:** "Why Steel is an Integral Part of Materials Science" Johannes (Hans) Schade, Ph.D., *Corporate Manager, Research & Innovation, AK Steel Corporation* **New ASME Fellow - Prof. *Joseph Slater*** **Recognition:** Sivaram Gogineni, *ASME Dayton Section Executive Advisor*						
1:40PM	Break						

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Room	Endeavour 156A	Endeavour 156B	Endeavour 156C	Discovery 163A	Discovery 163B	Atlantis 157A	Atlantis 157B
Time	SESSION 15 **Design & Optimization III** Chair: Dr. Ryan Schmit *AFRL*	SESSION 16 **Fluid Dynamics & CFD III** Chair: Dr. Carl Tilmann *AFRL*	SESSION 17 **Materials III** Chair: Dr. Ron Coutu *AFIT*	SESSION 18 **Laser Diagnostics & Combustion II** Chair: Dr. James Gord *AFRL*	SESSION 19 **Renewable & Clean Energy** Chair: Dr. Josh Heyne *UD*	SESSION 20 **Heat Transfer** Chair: Dr. Ben Halls *NRC*	SESSION 21 **Computing and Numerical Methods** Chair: Dr. Samir Naboulsi *AFRL*
2:00PM	*DESS15-0038* Multi-Fidelity Optimization via a Trust Region Centric Low-Fidelity Correction Framework *Christopher Fischer - WSU* *Dr. Ramana V. Grandhi - WSU* *Dr. Phil S. Beran - AFRL*	*DESS15-0004* Flute without Flute through Vibration, Aeroacoustics, and Turbulence Management *B. G. Shiva Prasad - WSU*	*DESS15-0068* Thin-film GeTe/Ge Photovoltaic Cell *Jimmy Lohrman - AFIT* *Ronald A. Coutu, Jr. - AFIT*	*DESS15-0062* Electronic-Resonance-Enhanced CARS Saturation from Nanosecond to Femtosecond Excitation Regime *Anil Patnaik - AFRL* *Sukesh Roy - SE* *James R. Gord - AFRL*	*DESS15-0002* Novel Solar Collector Design by Local Entrepreneur *Andy Lorenz - LS*	*DESS15-0050* Optimization Study of Solar Powered Irrigation System with Energy Storage *Vamshi Krishna Gundoji - WSU* *Dr. Jmaes Menart - WSU*	*DESS15-0047* Hardware Accelerators for High Performance Computing *Virginia Ross - AFRL* *Kevin Schoen - AFRL*
2:20PM	*DESS15-0040* Durability-Based Design Load Identification for Conceptual Design Exploration *Hao Li - WSU* *Dr. Ha-Rok Bae - WSU*	*DESS15-0017* Quantification of acoustic, hydrodynamic and thermal modes in a supersonic jet *Unnikrishnan Sasidharan Nair - OSU* *Dr. Datta V. Gaitonde - OSU*	*DESS15-0091* Optimizing the dimensions of a GeTe, indirect-heating switch for active metamaterial applications *Christopher Kodama - AFIT* *Ronald A. Coutu, Jr. - AFIT*	*DESS15-0025* Comparison of Two Femtosecond-Laser-Based Gas Thermometry Techniques *Daniel Richardson - AFRL* *Hans Stauffer - SE* *Sukesh Roy - SE* *James Gord - AFRL*	*DESS15-0006* Off Loading of Heat Pump Operation in Performing Summer Cooling with a Ground Source Heat Pump Geothermal System *Venkatesh Raghavan - WSU* *Dr. James Menart - WSU*	*DESS15-0078* Dynamic Model of a Solid Oxide Fuel Cell with an Internal Steam Reformer *Venkata Adithya Chakravarthula - WSU* *Rory A. Roberts - WSU* *Mitch Wolff - WSU*	*DESS15-0048* Dynamic Measurement Uncertainty Quantification (D MUQ) *Tommy Baudendistel - PCKA* *Jon Zumberge, PhD - AFRL*
2:40PM	*DESS15-0041* Joint design and analysis of leakage in movable extrusion dies. *Suresh kumar Kanathala - UD* *Dr. David Myszka - UD* *Dr. Andrew Murray - UD*	*DESS15-0007* Relationship between the Character of Turbulence of the Wingtip Vortex and the Shear Layer *Sidaard Gunasekaran - UD* *Dr. Aaron Altman - UD*	*DESS15-0061* Evaluation of Flow and Failure Properties of Treated 4130 Steel *Luke Wuertemberger - AFIT* *Dr. Anthony N. Palazotto - AFIT*	*DESS15-0037* Simultaneous Single-Shot Temperature and OH Concentration Measurements with Ultrashort-Pulse Lasers *Hans Stauffer - SE* *Jacob B. Schmidt - SE* *Sukesh Roy - SE* *Paul J. Wrzesinski - AFRL* *James R. Gord - AFRL*	*DESS15-0008* Optimum Angles for PV Panels for Different Conditions *Yugankkumar Nakrani - WSU* *Dr. James Menart - WSU*	*DESS15-0059* Thermal Tip to Tail Modeling of an Aircraft with High Energy Cryogenic Cooled Electronics *Sean Nuzum - WSU* *Rory Roberts - WSU* *Mitch Wolff - WSU*	*DESS15-0065* Development of a implicit discontinuous Galerkin solver using automatic differentiation *Nathan Wukie - UC* *Paul D. Orkwis - UC*
3:00PM	*DESS15-0032* Shape Sensitivity Analysis for Coupled Fluid-Solid Interaction Problems *Koorosh Gobal - WSU* *Dr. Ramana V. Grandhi - WSU*	*DESS15-0036* Analysis of Surface Pressure signature induced by Streamwise-Oriented Vortex Impinging on a Wing *Arvind Mohan - OSU* *Lionel Agostini - OSU* *Datta V. Gaitonde - OSU* *Daniel J. Garmann - AFRL*	*DESS15-0035* Surface Roughness of Electron Beam Melting Ti-6Al-4v Effect on Ultrasonic Testing *Evan Hanks - AFIT* *David Liu - AFIT* *Anthony Palazotto - AFIT*	*DESS15-0064* 100-kHz-Rate Gas-Phase Thermometry via Picosecond, Burst-Mode, Laser-Based Coherent Anti-Stokes Raman Scattering (CARS) Spectroscopy *Paul Hsu - SE* *Sukesh Roy - SE* *Naibo Jiang - SE* *Mikhail N. Slipchenko - SE* *James R. Gord - AFRL*	*DESS15-0023* Mathematical Model for Tidal Pool Energy Using Two-Way Generation with Slow Release *Peter Menart - CRHS* *Jim Menart - WSU*	*DESS15-0049* Data Acquisition and Control of an Air Cycle Machine Test Bed *Sydney Flora - PCKA* *Donald Mullinix - PCKA*	*DESS15-0052* Traffic Camera Dangerous Driver Detection TCD3: Contextually Aware Heuristic Feature & OFA Computer Vision to Learn & Identify Anomalous Driving *Vidur Prasad - DRSS*
3:20PM	*DESS15-0039* Topology Optimization of Thermoelastic Structures *David Neiferd - WSU* *Dr. Ramana V. Grandhi - WSU*	*DESS15-0043* Secondary Flows and Turbulence Modeling in Commercial Computational Fluid Dynamics *Jacob Sharpe - WSU* *Mitch Wolff - WSU*		*DESS15-0067* Time-Resolved In-Situ Absorption Spectroscopy of a Rotating Detonation Engine using a Fiber-Coupled Tunable Laser System *Keith Rein - AFRL*	*DESS15-0029* Utilization of One Axis Tracking Techniques for Photovoltaic Systems Using Compound Parabolic Concentrators *Jim Menart - WSU* *Will Vance - DPL*		
3:40PM	Adjourn						

160 - Apollo Room 1:40PM - 3:40PM Poster Session			
DESS15-0001 **Eliciting an Algorithm to Replicate Human Trust in Automation in the Domain of Reliance** *Jayson Boubin - AFIT* *Maj. Christina Rusnock, PhD - AFIT* *Dr. Michael Miller, PhD - AFIT*	*DESS15-0003* **Multi-Spectral Remote Thermal Imaging of Building Envelopes – Improving Ability to Extract Thermal Characteristics from Single-Point-in-Time Images** *Abdulrahman Alrobaian - UD* *K.P. Hallinan - UD* *R.J. Brecha - UD* *S. Alshatshati - UD*	*DESS15-0042* **Static and Dynamic Analysis of Vertically Aligned Carbon Nanotube Array Sensors** *Hannah Whitlock - UKY* *Colton C. Roach - UKY* *Y. Charles Lu - UKY*	*DESS15-0045* **Electro-Mechanical Characterization of Carbon Nanotube Sheets in Simulated Space Environments** *Jacob Singleton - AFIT* *Heath E. Misak - AFIT* *Shankar Mall - AFIT*
DESS15-0063 **Insulator oxide film formation with acid catalyzed hydrolysis of alkoxide precursors in supercritical fluid CO2** *Joanna Wang - AFRL* *Chien. M. Wai - UI* *Gail J. Brown - AFRL* *Scott D. Apt - AFRL* *Angela M. Campo - AFRL*	*DESS15-0071* **Electrical and Physical Characterization of 3D Printed Conductive Polymers** *Kathleen Bledsoe - WHS* *Douglas Callinan - VBMS* *Amanda Turner - LJHS* *Dr. Ahsan Mian - WSU* *Prudhvi Teja Kanagala - WSU*	*DESS15-0086* **Tensile Properties of 3D Printed Materials** *Cynthia Dickman - UD* *Amy Lamb,Shane Sullivan,Robert Winkler, Caroline Boeckman, Emma Cipriani, Dr. Margaret Pinnell, Sarah Kuhlman, Susan Hill, Dr. Thomas Whitney - UD*	*DESS15-0087* **An Innovative Thermal Management System (TMS) for Avionics Cooling** *Kevin Launglucknavalai - BEG* *Joe Charneski - BEG* *Dr. Jayesh Mehta - BEG*
DESS15-0090 **Metal Matrix Composites, Components, and Joints made with Ultrasonic Additive Manufacturing** *Tianyang Han - OSU* *Adam Hehr - OSU* *Paul J. Wolcott - OSU* *Leon Headings - OSU* *Marcelo J. Dapino - OSU*	*DESS15-0092* **Ultrasonic Lubrication for Friction and Wear Reduction** *Leon Headings - OSU* *Sheng Dong - OSU* *Marcelo J. Dapino - OSU*	*DESS15-0093* **The Effects of Sugar on Peas and Peppers Plants Growth?** *Montana Limehouse - TMHS*	

Abbreviations:

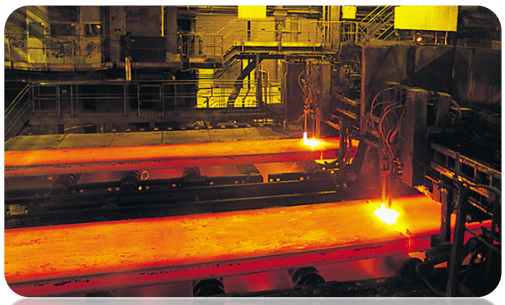
AFIT = Air Force Institute of Technology
AFRL = Air Force Research Laboratory
BEG = Belcan Engineering Group, Inc.
CCHS = Catholic Central High School
CDU = Cedarville University
CRHS = Carroll High School
CSU = Central State University
DPL = Dayton Power & Light
DRSC = Dayton Regional STEM Center
DRSS = Dayton Regional STEM School
ISSI = Innovative Scientific Solutions Inc.
LJHS = Lebanon Junior High School
LS = Lorenz Solar
MU = Miami University
NRC = National Research Council
OAI = Ohio Aerospace Institute
OSU = The Ohio State University
PCKA = PC Krause & Associates
PU = Purdue University
SE = Spectral Energies LLC
TMHS = Thurgood Marshall High School
UC = University of Cincinnati
UD = University of Dayton
UDRI = University of Dayton Research
UI = University of Idaho
UKY = University of Kentucky
UM = University of Michigan
UNO = University of Nebraska at Omaha
UTC = Universal Technology Corp.
VBMS = Van Buren Middle School
WHS = Wayne High School
WSU = Wright State University

KEYNOTE SPEAKER

“Why Steel is an Integral Part of Materials Science”

Dr. Johannes (Hans) Schade is Corporate Manager of Research and Innovation for AK Steel. After obtaining his Ph.D. from the University of Toronto, Dr. Schade joined ARMCO’s Research department in Middletown, Ohio, in 1990 as an engineer in the Continuous Casting Group. In 1993, he was transferred to be a researcher in a joint venture company between ARMCO and Kawasaki that eventually became AK Steel. He spent 20 years working on steelmaking, refining and casting operations, operated two of AK Steel’s continuous casters, and participated in three modification upgrades on AK Steel casters. He has spent his entire 25 year industrial career with Armco/AK Steel, progressing through various engineering and management positions in both Research and Operations, including managing Operation Support, Primary Process Research, Specialty Steel Research, Electrical Steel Research, and most recently being named as Corporate Manager of all process research activities–covering all aspects of steelmaking, rolling, pickling, welding, and coating of flat rolled carbon, stainless, and electrical steels. He is responsible for the operation of all research laboratories, including melting, rolling, finishing, heat treating, and coating, as well as mechanical, magnetic, electrical, and microstructural testing.

Dr. Schade holds three degrees from the University of Toronto as well as a Master’s degree from the Athenaeum of Ohio. He has been an active member of the Association for Iron and Steel Technology (AIST) since 1983 and has received numerous awards during his career, including the Charles W. Briggs Award, two Robert W. Hunt Silver Medals, the Frank B. McKune Award, and most recently the 2014 Benjamin F. Fairless Award. He has authored 21 publications, including two books on casting technology.



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