NDIA
National Defense Industrial Association

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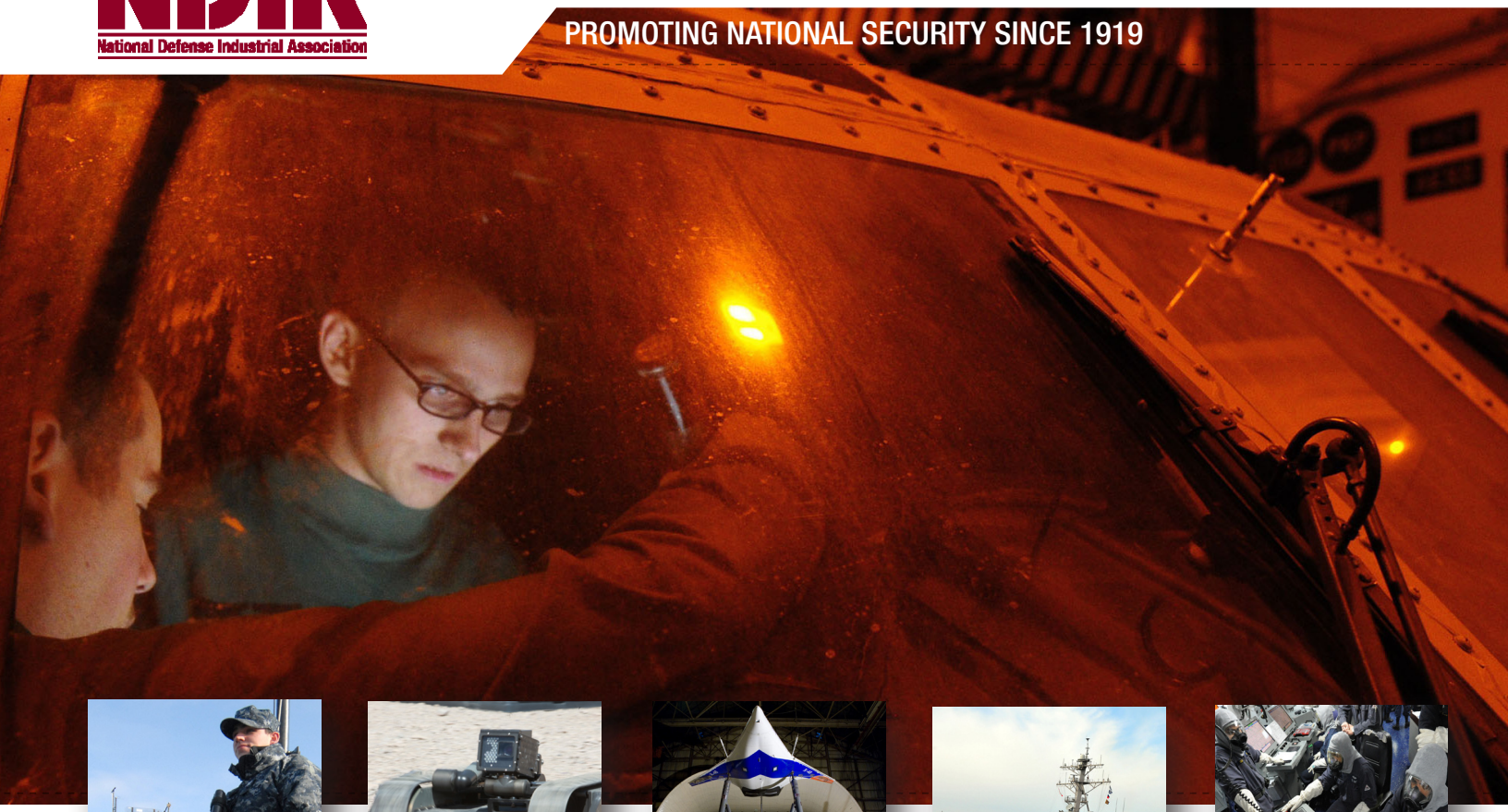


PHYSICS-BASED MODELING IN DESIGN & DEVELOPMENT FOR U.S. DEFENSE CONFERENCE

"Design Innovation to Improve DoD Acquisition"

HYATT REGENCY DENVER TECH CENTER ▸ DENVER, CO

NOVEMBER 14-17, 2011

EVENT #2170

WWW.NDIA.ORG/MEETINGS/2170

MONDAY, NOVEMBER 14, 2011

TOOL SEMINARS
CHASM CREEK B

9:00 AM - 9:45 AM
"Key Criteria for Successful Deployment of Engineering Simulation Tools within the DoD"
Dr. Robert Harwood, *ANSYS*

MORNING BREAK

10:15 AM - 11:00 AM
13339 - "Computational Science and Engineering Laboratory (CSELab): Joint Industry and Government Development of Multi-physics Model-based Engineering and Design Tools"
Mr. Glen Salo, *Riverside Research*

11:15 AM - 12:00 PM
"Systems Tool Kit"
Mr. Kevin Flood, *AGI*

LUNCHEON - GRAND MESA ABC

1:00 PM - 1:45 PM
"Advanced Simulation and Optimization"
Mr. Tom Bianchi, *SIMULIA*

2:00 PM - 2:45 PM
"ISIGHT"
Mr. Jon Arata, *SIMULIA*

AFTERNOON BREAK

3:15 PM - 4:00 PM
13289 - "HyGie-Tech USA Offers HG_ Flow Software, a High Performance, Risk Oriented, Computational Fluid Dynamics Modeling System for Chemical and Biological Defense"
Dr. Philippe Le Goff, *HyGie-Tech USA*

7:00 am - 5:00 pm **REGISTRATION** GRAND MESA FOYER

7:00 am - 8:00 am **CONTINENTAL BREAKFAST** ATRIUM DISPLAY AREA, 2ND FLOOR

8:00 am - 5:00 pm **TOOL SEMINARS** *ADDITIONAL $300 TO ATTEND

8:00 am - 5:00 pm **TUTORIAL SESSIONS** *ADDITIONAL $250 TO ATTEND

TUTORIAL SESSIONS

	TRACK 1 GRAND MESA D	TRACK 2 GRAND MESA F	TRACK 3 CHASM CREEK A
8:00 AM - 9:45 AM	13417 - "Modelica, Part 1 - Introduction to Modelica" Dr. Michael Tiller, *Dassault Systèmes*	13100 - "GPU Computing for Engineers and Scientists" Dr. Dan Negrut, *University of Wisconsin-Madison*	
MORNING BREAK - ATRIUM			
10:15 AM - 12:00 PM	CONTINUED 13417 - "Modelica, Part 2 - Introduction to Modelica" Dr. Michael Tiller, *Dassault Systèmes*	CONTINUED 13100 - "GPU Computing for Engineers and Scientists" Dr. Dan Negrut, *University of Wisconsin-Madison*	
LUNCHEON - GRAND MESA ABC			
1:00 PM - 2:45 PM	CONTINUED 13417 - "Modelica, Part 3 - Introduction to Modelica" Dr. Michael Tiller, *Dassault Systèmes*	13474 "Overview of the COMSET Modeling and Simulation Environment for the Multi-level Performance and Interoperability Analysis of Multifunction RF Systems" Dr. Edgar Martinez, *Raytheon Company*	13286 - "ONR Uni-Grow - An Improved Structural Life Analysis Model" Dr. Nagaraja Iyyer, *TDA, Inc.* Mr. Paul Howard, *Paul L. Howard Enterprises*
AFTERNOON BREAK - ATRIUM			
3:15 PM - 5:00 PM	13224 - "Immersive Engineering" Mr. Joe Kleiss, *U.S. Army-ARDEC*	CONTINUED 13474 "Overview of the COMSET Modeling and Simulation Environment for the Multi-level Performance and Interoperability Analysis of Multifunction RF Systems" Dr. Edgar Martinez, *Raytheon Company*	13261 - "Identification of M&S Uncertainty and Assessment of M&S Use Risk" Ms. Simone Youngblood, *Johns Hopkins University Applied Physics Laboratory*

5:00 pm - 6:00 pm **WELCOME RECEPTION** ATRIUM DISPLAY AREA, 2ND FLOOR

TUESDAY, NOVEMBER 15, 2011

7:00 am - 5:30 pm **REGISTRATION** GRAND MESA FOYER

7:00 am - 8:00 am **CONTINENTAL BREAKFAST** ATRIUM DISPLAY AREA, 2ND FLOOR

8:00 am - 8:10 am **OPENING REMARKS** GRAND MESA DEF

- Mr. Bob Rassa, *Chair, NDIA Systems Engineering Divison; Director, Engineering Programs, Raytheon Company*
- Lt Gen Larry Farrell, USAF (Ret), *President & CEO, NDIA*

8:10 am - 8:50 am **KEYNOTE SPEAKER**

- Dr. Jeff Holland, *Director, U.S. Army Engineer Research and Development Center*

8:50 am - 9:45 am **KEYNOTE SPEAKER**

- Dr. Ed Kraft, *Arnold Engineering Development Center, Arnold AFB*

9:45 am - 10:15 am **MORNING BREAK** ATRIUM DISPLAY AREA, 2ND FLOOR

10:15 am - 12:00 pm **PLENARY SESSION**

CREATE EXECUTIVE PANEL: OVERVIEW OF CREATE PRODUCTS: AV, SHIPS, RF, MESHING/GEOMETRY

- **Moderator**: Dr. Douglass Post, *DoD High Performance Computing Modernization Program*
- **Air Vehicles:** Mr. Adrian Mackenna, *Ship Design Tools Implementation Lead, Naval Sea Systems Command*
- **Ships:** Mr. Myles Hurwitz, *DoD High Performance Computing Modernization Program*
- **RF Antennas:** Dr. John D'Angelo, *Air Force Research Laboratory, Wright Patterson Air Force Base*
- **Meshing & Geometry:** Dr. Saikat Dey, *CREATE Meshing and Geometry Project Manager, Naval Research Laboratory*
- **Portal:** Mr. David Morton, *Director, AFRL Maui High Performance Computing Center DSRC*

12:00 pm - 1:30 pm **LUNCHEON** GRAND MESA ABC

- RADM Thomas J. Eccles, USN, *Chief Engineer and Deputy Commander for Naval Systems Engineering, Naval Sea Systems Command*

1:30 pm - 3:00 pm **USER EXECUTIVE PLENARY SESSION**

- **Moderator:** Mr. Loren Miller, *Data Metric Innovations, LLC*
- Mr. Robert Keane, *President, Ship Design USA, Inc., former NAVSEA Chief Naval Architect*
- Mr. John Dean, *SEEKEAGLE, Eglin AFB*
- Mr. Ray Cosner, *Boeing Company*

3:00 pm - 3:30 pm **AFTERNOON BREAK** ATRIUM DISPLAY AREA, 2ND FLOOR

3:30 pm - 5:30 pm **EXECUTIVE PLENARY SESSION**

- **Moderator**: Mr. Jim O'Bryon, *President, The O'Bryon Group; Chair, NDIA T&E Division*
- Mr. Gary Ross, *Raytheon Company*
- Dr. Ed Kraft, *Arnold Engineering Development Center, Arnold AFB*
- Maj Gen Paul Neilsen, USAF (Ret), *Director, Software Engineering Institute, Carnegie Melon University*
- Dr. David Womble, *Sandia National Laboratories*

5:30 pm - 6:30 pm **NETWORKING RECEPTION** ATRIUM DISPLAY AREA, 2ND FLOOR

WEDNESDAY, NOVEMBER 16, 2011

7:00 am - 5:15 pm **REGISTRATION** GRAND MESA FOYER

7:00 am - 8:00 am **CONTINENTAL BREAKFAST** ATRIUM DISPLAY AREA, 2ND FLOOR

8:00 am - 5:15 pm **CONCURRENT SESSIONS**

	TRACK 1 **GRAND MESA D** MESHES	**TRACK 2** **GRAND MESA F** SE M&S PERSPECTIVES	**TRACK 3** **CHASM CREEK A** MODEL DEPLOYMENT METHODS	**TRACK 4** **CHASM CREEK B** HPC USE FOR DESIGN, DEVELOPMENT, AND TESTING	**TRACK 5** **GRAND MESA E** **U.S. ONLY SESSION (CITIZEN CERTIFICATION REQUIRED)**
SESSION CHAIRS		Mr. Kenneth Konwin, *Booz Allen Hamilton*		Dr. James Coolahan, *Johns Hopkins University Applied Physics Laboratory*	
8:00 AM - 8:55 AM	13280 - "CAPSTONE: Providing Geometry, Mesh and Attribution Modeling for Analysis and Design" Dr. Saikat Dey, *Naval Research Laboratory*	13275 - "Moving From Empirically-Based Models to Physics-Based Models: An Incentive / Investment Strategy" Mr. James O'Bryon, *The O'Bryon Group*	13233 - "High Performance Computational Dynamics in a Heterogeneous Hardware Ecosystem" Dr. Dan Negrut, *University of Wisconsin-Madison*	13211 - "The Use of Physics of Failure Tools for Reliability Improvement and Addressing Modularity Issues in Evaluation and Physical Testing" Dr. Richard Heine, *Army Materiel Systems Analysis Activity*	13210 - "Computational Approach To The Design & Assessment Of Military Equipment to Survive Severe Dynamic Loading" Dr. E. Thomas Moyer, *Naval Surface Warfare Center, Carderock Division*
8:55 AM - 9:45 AM	13599 - "Interoperable Components for Parallel Mesh Generation and Adaptation" Dr. Mark Shephard, *Rensselaer Polytechnic Institute*	13418 - "Physics-Based Modeling: What We Can Do While We're Waiting" Dr. Robert Neches, *ODASD-SE*	13457 - "Portal Development for HPC at Maui High Performance Computing Center" Mr. David Morton, *Air Force Research Laboratory*		13476 - "Massively Parallel Implementation of EM Scattering Models for Active Millimeter Wave Imaging System Simulation" Mr. Neel Kishan, *Reveal Imaging Technologies*
MORNING BREAK					
10:15 AM - 11:10 AM	13611 - "CUBIT and Real-World Applications" Dr. Brett Clark, *Sandia National Laboratories*	13366 - "Baselining the State of Physics-Based Modeling Use in DoD Acquisition Organizations" Mr. Richard Herrmann, *High Performance Technologies*	13497 - "Usability for DOE/ASC Codes: You Can Teach DOE Dogs to Do New DoD Tricks" Dr. Kyran Mish, *Sandia National Laboratories*	13293 - "Computational Fluid Dynamics for Simulation Based Design: Challenges and Opportunities" Dr. Pradeep Raj, *Denmar Technical Services*	13523 - "An Advanced Approach to the Configuration and Validation of Computational Physics Simulation Inputs" Mr. Nathan Smith, *Riverside Research*

WEDNESDAY, NOVEMBER 16, 2011

	TRACK 1 GRAND MESA D MESHES	TRACK 2 GRAND MESA F SE M&S PERSPECTIVES	TRACK 3 CHASM CREEK A MODEL DEPLOYMENT METHODS	TRACK 4 CHASM CREEK B HPC USE FOR DESIGN, DEVELOPMENT, AND TESTING
SESSION CHAIRS		Mr. Kenneth Konwin, *Booz Allen Hamilton*		Dr. James Coolahan, *Johns Hopkins University Applied Physics Laboratory*
11:10 AM - 12:00 PM	13241 - "Multiphysics Modeling of Pre-ignition Damage in Energetic Materials and the Effect on Cookoff Violence" Dr. Daniel Turner, *Sandia National Laboratories*	13486 - "Modeling & Simulation (M&S) Research Responses to the Engineering Resilient Systems Challenge" Dr. Gary Allen, *Joint Training Integration and Evaluation Center*	13568 - "Towards Embedded Simulation" Mr. Robert Regal, *U.S. Department of the Navy*	13294 - "Physics-based Modeling in Design and Development of Space Vehicles" Dr. Vadim Smelyanskiy, *NASA Ames Research Center*
LUNCHEON GRAND MESA ABC "Interactive Session on Physics-Based Modeling and CMMI®-Based Process Improvement" ▶ Mr. Geoff Draper, *Harris Corporation*				
	TRACK 1 GRAND MESA D HYDRODYNAMICS AND AERODYNAMICS	**TRACK 2 GRAND MESA F** FIXED- AND ROTARY-WING AIRCRAFT	**TRACK 3 CHASM CREEK A** COMBAT VEHICLES AND BLAST PROTECTION	**TRACK 4 CHASM CREEK B** HPC USE FOR DESIGN, DEVELOPMENT, AND TESTING
SESSION CHAIRS		Mr. Dale Burnham, *Air Force Center for Systems Engineering*	Dr. David Womble, *Sandia National Laboratories*	Mr. Loren Miller, *DataMetric Innovations*
1:30 PM - 2:25 PM	13502 - "Toward High-Fidelity Prediction of Turbulent Shear Flow Around Self-Propelled Submarines in a Maneuver" Dr. Sung-Eun Kim, *Naval Surface Warfare Center, Carderock Division*	13274 - "CREATE-AV DaVinci: Model-Based Engineering for Systems Engineering Decision Making" Mr. Gregory Roth, *U.S. Air Force/ASC/XR*	12999 - "Development of Tire Model for Vehicle Dynamic Ride Quality Analysis" Dr. Peilin Song, *Army Materiel Systems Analysis Activity*	13406 - "A High Fidelity Simulation Environment for the Design and Development of Autonomous Unmanned Ground Vehicles: The Virtual Autonomous Navigation Environment (VANE)" Mr. Phillip Durst, *U.S. Army ERDC*
2:25 PM - 3:15 PM	13503 - "A Physics-Based Modeling of Surface Ship Fixed at Sinkage and Trim" Dr. Bong Rhee, *Naval Surface Warfare Center, Carderock Division*	13273 - "Kestrel Version 2: A Fixed Wing Virtual Aircraft Product of the CREATE Program" Dr. Scott Morton, *U.S. Air Force / SEO*		13490 - "Application of High-Fidelity Computational Fluid Dynamics to Design Optimization for Missile Static Stability" Dr. Gregory McGowan, *Corvid Technologies*
AFTERNOON BREAK				

WEDNESDAY, NOVEMBER 16, 2011

	TRACK 1 GRAND MESA D HYDRODYNAMICS AND AERODYNAMICS	TRACK 2 GRAND MESA F FIXED- AND ROTARY-WING AIRCRAFT	TRACK 3 CHASM CREEK A COMBAT VEHICLES AND BLAST PROTECTION	TRACK 4 CHASM CREEK B HPC USE FOR DESIGN, DEVELOPMENT, AND TESTING
SESSION CHAIRS		Mr. Dale Burnham, *Air Force Center for Systems Engineering*	Dr. David Womble, *Sandia National Laboratories*	Mr. Loren Miller, *DataMetric Innovations*
3:30 PM - 4:25 PM	13378 - "CaMEL CFD Technologies For HPC" Dr. Shahrouz Aliabadi, *Jackson State University*	13271 - "Firebolt – The CREATE-AV Propulsion Integration Module" Dr. Robert Nichols, *Arnold Engineering Development Center / University of Alabama at Birmingham*	13499 - "Blast and Fragmentation Capabilities for National Security Applications" Dr. Kyran Mish, *Sandia National Laboratories*	13444 - "Development of the CREATE Integrated Hydrodynamic Design Environment (IHDE)" Mr. Bob Ames, *Naval Surface Warfare Center, Carderock Division*
4:25 PM - 5:15 PM	13295 - "High-Fidelity Physics-Based Simulations of Unsteady Projectile Aerodynamics" Dr. Jubaraj Sahu, *U.S. Army Research Laboratory*	13272 - "High-Performance Computing for Rotorcraft Modeling and Simulation" Dr. Roger Strawn, *U.S. Army AMRDEC*	13307 - "A Blast Model of Interior Gypsum Board Steel-stud Wall Systems" Mr. John Adams, *Booz Allen Hamilton*	13234 - "Controlling the Risks of a New Naval Ship Design: Using More Physics-Based Design Tools in Early Concept Design" Mr. Robert Keane, *Ship Design USA*
ADJOURN				

THURSDAY, NOVEMBER 17, 2011

7:00 am - 12:00 pm **REGISTRATION** GRAND MESA FOYER

7:00 am - 8:00 am **CONTINENTAL BREAKFAST** ATRIUM DISPLAY AREA, 2ND FLOOR

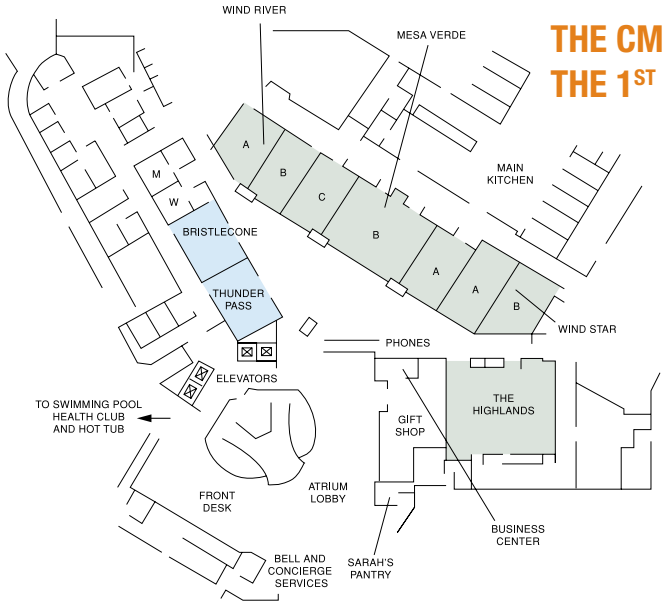
8:00 am - 12:00 pm **CONCURRENT SESSIONS**

	TRACK 8 **GRAND MESA D** COST ANALYSIS AND SOFTWARE ENGINEERING	**TRACK 9** **GRAND MESA F** ELECTRO-OPTIC AND RADIO FREQUENCY DEVICES	**TRACK 10** **CHASM CREEK A** FROM CONCEPT TO PRODUCTION	**TRACK 11** **CHASM CREEK B** EXPLOSIVES AND COMBUSTION
SESSION CHAIRS	Dr. James Coolahan, *Johns Hopkins University Applied Physics Laboratory*			Mr. Brett Berlin, *High Performance Technologies*
8:00 AM - 8:55 AM	12946 - "Optimizing Data Driven Cost Estimating Models for Space Mission Analysis and Design" Mr. Zachary Jasnoff, *PRICE Systems*	13308 - "Physics-Based Performance Analysis with High Fidelity, Dynamic, Real-Time EO Scene Generation" Dr. Michael Rivera, *Raytheon Missile Systems*		13305 - "Physics-Based Modeling and Simulation of Shock-to-Detonation Transition in Energetic Materials" Dr. Thomas Jackson, *IllinoisRocstar*
8:55 AM - 9:45 AM	13453 - "A High Performance Composable Synthetic Environment for Design, Engineering, Training and Testing" Mr. Jeffrey Wallace, *Infinite Dimensions*	13448 - "Scene Generation Simulation Runtime Performance Improvement" Mr. John Pate, *Raytheon Missile Systems*	13623 - "Rapid Ship Design Environment" Mr. Adrian Mackenna, *Naval Surface Warfare Center, Carderock Division*	
MORNING BREAK				
10:15 AM - 11:10 AM	13238 - "Software Engineering Practices in the Development of CAST" Mr. William Lohsen, *Georgia Tech Research Institute*	13518 - "Modeling Complex Antenna Structures with CREATE-RF Software" Dr. John D'Angelo, *U.S. Air Force*	13489 - "PREVIEW: The Predictive Environment for Visualization of Electromechanical Virtual Validation" Dr. Ibrahim Ozbolat, *University of Iowa*	13609 - "Conceptual Design Analysis for Enhanced Mixing and Combustion in Re-heat Combustion Devices" Dr. Hugh Thornburg, *High Performance Technologies*
11:10 AM - 12:00 PM	13447 - "System Co-Design in an Integrated Flight Simulation" Mr. Antony Bruner, *Raytheon Missile Systems*		13501 - "Assessing Integrated Computational Materials Science and Engineering Practice within the Air Force Research Laboratories' Manufacturing Technology Division and its Industry Partners" Dr. Mark Benedict, *Air Force Research Laboratory*	
CONFERENCE ADJOURNS				

ADDITIONAL AUTHORS

ABSTRACT #	ABSTRACT TITLE	ADDITIONAL AUTHORS
12999	Development of Tire Model for Vehicle Dynamic Ride Quality Analysis	Mr. James Horchner, Mr. Peter Melick
13100	A Hands-On Tutorial on GPU Computing for Engineers and Scientists	Dr. Krishnan Suresh, Dr. Vadim Shapiro
13233	High Performance Computational Dynamics in a Heterogeneous Hardware Ecosystem	Dr. David Lamb, Mr. Toby Heyn, Hammad Mazhar, Mr. Andrew Seidl
13234	Controlling the Risks of a New Naval Ship Design: Using More Physics-Based Design Tools in Early Concept Design	Mr. Myles Hurwitz
13261	Identification of M&S Uncertainty and Assessment of M&S Use Risk	Mr. Peter Pandolfinim, Mr. Dale Pace
13273	Kestrel Version 2: A Fixed Wing Virtual Aircraft Product of the CREATE Program	Mr. Timothy Eymann, Dr. David McDaniel, Mr David Sears, Mr. Todd Tuckey
13280	CAPSTONE: Providing Geometry, Mesh and Attribution Modeling for Analysis and Design	Mr. Eric Mestreau, Dr. Kaan Karamete, Dr. Felipe Bulat-Jara, Dr. Romain Aubry
13294	Physics-based Modeling in Design and Development of Space Vehicles	Prof. Veyatcheslav Osipov
13307	A Blast Model of Interior Gypsum Board Steel-stud Wall Systems	Mr. Alexander Sweeney
13308	Physics-Based Performance Analysis with High Fidelity, Dynamic, Real-Time EO Scene Generation	Mr. Jonathan Buchanan, Mr. Anibal Morales
13366	Baselining the State of Physics-Based Modeling Use in DoD Acquisition Organizations	Mr. Frank Salvatore
13378	CaMEL CFD Technologies For HPC	Dr. Erdal Yilmaz
13447	System Co-Design in an Integrated Flight Simulation	Mr. Rom-Shen Kao
13448	Scene Generation Simulation Runtime Performance Improvement	Mr. Mark Anderson, Mr. John Pate, Mr. Edward Romic
13453	A High Performance Composable Synthetic Environment for Design, Engineering, Training and Testing	Dr. Gerald Prichard, Dr. Chris Fink, Mr. Russ Moulton, Dr. Sara Kambouris
13476	Massively Parallel Implementation of EM Scattering Models for Active Millimeter Wave Imaging System Simulation	Mr. Scott MacIntosh, Mr. Thorkild Hansen
13486	Modeling & Simulation Research Responses to the Engineering Resilient Systems Challenge	Mr. Chris Gaughan
13489	The Predictive Environment for Visualization of Electromechanical Virtual Validation	Mr. Omer Elgaali, Mr. Chen Cui, Ms. Yahui Zhang
13490	Application of High-Fidelity Computational Fluid Dynamics to Design Optimization for Missile Static Stability	Dr. Robert Nance, Dr. Patrick Keistler, Dr. James Carpenter V
13502	Toward High-Fidelity Prediction of Turbulent Shear Flow around Self-Propelled Submarines in a Maneuver	Bong Rhee, Mr. Abel Vargas, Mr. Keegan Delaney, Mr. Joseph Gorski
13518	Modeling Complex Antenna Structures with CREATE-RF Software	Dr. John D'Angelo, Dr. Ryan Chilton, Dr. Jorge Villa-Giron
13523	An Advanced Approach to the Configuration and Validation of Computational Physics Simulation Inputs	Mr. Glen Salo
13568	Towards Embedded Simulation	Mr. Kevin Bush
13599	Interoperable Components for Parallel Mesh Generation and Adaptation	Dr. Mark Beall, Mr. Saurabh Tendulkar, Mr. Cameron Smith
13609	Conceptual Design Analysis for Enhanced Mixing and Combustion in Re-heat Combustion Devices	Dr. Balu Sekar

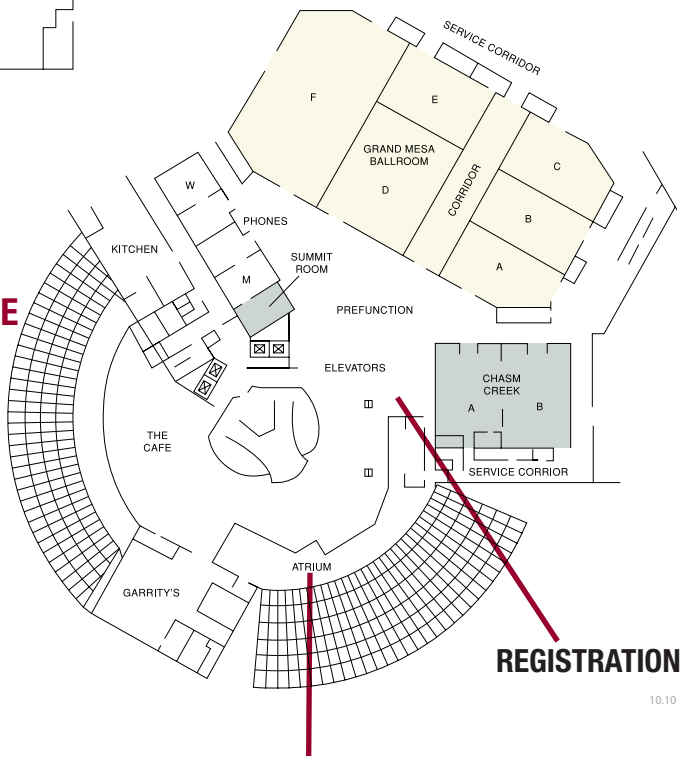
GROUND FLOOR



THE CMMI® CONFERENCE WILL BE LOCATED ON THE 1ST FLOOR.

THE PHYSICS-BASED MODELING IN DESIGN & DEVELOPMENT FOR U.S. DEFENSE CONFERENCE WILL BE HELD ON THE 2ND FLOOR.

SECOND FLOOR



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National Defense Industrial Association

THANK YOU FOR ATTENDING THE PHYSICS-BASED MODELING IN DESIGN & DEVELOPMENT FOR U.S. DEFENSE CONFERENCE!

THE CONFERENCE PROCEEDINGS WILL BE POSTED WITHIN 2 WEEKS TO THE FOLLOWING LINK: http://www.dtic.mil/ndia/2011physics/2011physics.html

THE ATTENDEE ROSTER WILL BE EMAILED TO ATTENDEES AT THE CONCLUSION OF THE CONFERENCE.