

ASME ECTC 2009: ASME Early Career Technical Conference
October 2-3, 2009 Tuscaloosa, Alabama

The Ninth Annual Technical Conference
*Sponsored by UA, FIU, ASME Old Guard, HOLTEC International, ASME Mississippi and Birmingham Sections and
ASME District F*

2009 ECTC Conference Committee Chair: Dr. K. R. Rao
2009 ECTC Technical Committee Chair: Dr. Robert P. Taylor
2009 ECTC Treasurer: Dr. Lee Durbetaki

2009 ASME ECTC Program

Friday October 2, 2009

7:30 - 8:30 Check in and Continental Breakfast AIME Lobby

8:30 - 9:00 Welcome--AIME Assembly Hall

Session I--AIME Assembly Hall

9:00 - 9:20 A Novel Gradient-Type Method Based on Maximum Entropy Principle Applied to the Inverse Radiation Problems, by Ramin K. Rahmani (The University of Toledo, Ohio, USA), Hosein Molavie and Anahita Ayasoufi

9:25 - 9:45 Numerical Simulation of Transient Radiative Heat Transfer Applying Finite Volume Method on Generalized Computational Grid, by Ramin K. Rahmani (The University of Toledo, Ohio, USA), Anahita Ayasoufi and Hosein Molavi

9:50 - 10:10 A Critical Review on Single Component Working Fluids for Organic Rankine Cycles (ORC's), by Rambod Rayegan (Florida International University, Miami FL, USA) and Yong X. Tao

10:15 - 10:40 Performance and Emission Characteristics of a Diesel Engine with Linseed Oil, by Ch. S. Naga Prasad (JNTU College of Engineering, Hyderabad, India) and K Vijaya Kumar Reddy

10:40 – 11:00 Break AIME Lobby

Session II--AIME Assembly Hall

11:00 - 11:20 Modeling of Fluid Flow in Cortical Bone, by Gaffar Gailani (New York City College of Technology, New York, USA), Sidi Berri and Stephen Cowin

11:25 - 11:45 Detrended Fluctuation Analysis of Center of Pressure Data Reveal Underlying Complexity of Postural Control, by Kimberly Edginton Bigelow (The University of Dayton, Ohio, USA)

11:50 – 12:10 Mechanical Tracheobronchial Model for Human Lung Inhalation Study, by Mohammed Ali (Jackson State University, Mississippi, USA)

12:15 - 12:35 Design, Construction, and Calibration of a Hip Simulator, by Tadhg Adderley (Institute of Technology Tallaght, Dublin, Ireland), Fiona McEvoy, Yanyi Blake and Rob Flavin

12:35 - 1:15 Lunch AIME Lobby

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Friday October 2, 2009 (Continued)

Session III--AIME Assembly Hall

- 1:15 - 1:35 A Stereo-Videogrammetry System for Monitoring Wind Turbine Blade Surfaces During Structural Testing, by Jay T. Johnson (Georgia Institute of Technology, Atlanta GA, USA), Scott Hughes and Jeroen van Dam
- 1:40 – 2:00 Reliability and Risk-Based Failure Prevention Concepts for Pipeline Systems, by Georgios Sarakakis (ReliaSoft Corporation, Tucson, Arizona, USA) and Dimitri B. Kececioglu
- 2:05 - 2:25 Output Feedback Control of Smart Projectile Fin Based on Internal Model Principle, by Shivakanth Gutta (The University of Nevada Las Vegas, Nevada, USA) and Sahjendra Singh
- 2:30 - 2:50 Patching Topologically Simple Holes in Unstructured Mesh Using Non-Uniform Rational B-Splines, by Amitesh Kumar (The University of Alabama at Birmingham, Alabama, USA) and Alan M. Shih
- 2:55 – 3:15 Marine Survey System for Detection of Unexploded Ordnance, by M. Christopher Gibson (SAIC, Cary NC, USA) and Jim R. McDonald
- 3:15 - 3:30 Break AIME Lobby**

Session IV--AIME Assembly Hall

- 3:30 - 3:50 Integral and Reduced Order Lyapunov Optimizing Sliding Mode Control, by Dale McDonald (Midwestern State University, Wichita Falls TX, USA) and Carrie A. Taylor
- 3:55 – 4:15 Design & Manufacturing with Modeling, Dynamic Balancing & Finite Element Analysis of Rotary Fixture for CNC Turning Center To Function as HMC, by Nirav P. Maniar (S. V. National Institute of Technology, Surat, Gujarat, India), D. P. Vakharia and Chetan M. Patel
- 4:20 - 4:40 Cutting Edge Profile Characterization by White-Light Interferometry, by Andrew Ogilvie (The University of Alabama, Tuscaloosa, Alabama, USA) and Kevin Chou
- 4:45 – 5:05 Design & Manufacturing with Modeling of Multicomponent—Single Hydraulic Fixture with 10 Cylinders & Expandable Uniforce Clamp for Machining Earthing Terminal Block on CNC—VMC 430, by Chetan M. Patel (R. K. College of Engineering and Technology, Rajkot, Gujarat, India), Nirav P. Maniar and D. P. Vakharia
- 5:10 – 5:30 Futuristic Prediction of Life and Fatigue Performance of a Steering Knuckle, by Kartik D. Kothari (V.V.P. Engineering College, Rajkot, Gujarat, India), Ramdevsinh Jhala and S. S. Khandare

6:30 Banquet in Smith Hall

Saturday, October 3, 2009

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8:00 - 8:30 Continental Breakfast AIME Lobby

Session V--AIME Assembly Hall (Concurrent w/Session VI)

- 8:30 – 8:50 An Analytical Method to Determine the Compressive Characteristic Length of Composite Joints, by O. Aluko (The University of Michigan-Flint, Michigan, USA)
- 8:55 - 9:15 Shock Response and Finite Element Modeling of Nanoclay and Graphite Platelet Reinforced Vinyl Ester Nanocomposites, by Swasti Gupta (The University of Mississippi, Mississippi, USA), P. Raju Mantena, Ahmed Al-Ostaz and Christopher L. Mullen
- 9:20 - 9:40 Punch-Shear Characteristics on Nanoclay and Graphite Platelet Reinforced Vinyl Ester Plates, Laminated Face Sheets and Sandwich Composites Under Low Velocity Impact, by Brahmananda Pramanik (The University of Mississippi, Mississippi USA) and P. Raju Mantena
- 9:45 - 10:05 Nano-Indentation of MonoLayer Graphene Sheet Using Molecular Dynamic Simulations, by Roy Downs (The University of Arkansas, Arkansas, USA), Sachin S. Terdalkar and Joseph J. Rencis
- 10:10 - 10:30 Tensile and Compressive Properties of IM7/8552 Monolithic Composite Panels—An Experimental Study Using Notched and Unnotched Specimens, by J. T. Maher (The University of South Alabama, Alabama, USA), G. Hickman, S. M. Ramsey, P. Sivapuram and A.-V. Phan

Session VI--AIME Planning Room (Concurrent w/Session V)

- 8:30 – 8:50 In-Cylinder Flow Velocity Measurements in a Briggs-Stratton Engine, Marcus Ashford (The University of Alabama, Tuscaloosa AL, USA), Semih M. Olcmen, Tad Driver, Philip Schinetsky and Jason Davis
- 8:55 - 9:15 A Novel Helicopter Icing Spray System Design, by Christina L. Carmen (The University of Alabama in Huntsville, Alabama, USA) and F. Christian Sautter
- 9:20 - 9:40 Numerical Simulation of Hi-Star 63 with Polyurethane Foam Impact Limiter During Hypothetical Fire Accident, by Abrar H. Mohammed (Holtec International, Marlton NJ, USA), Debu M. Majumdar, Indresh Rampali and Luis Hinojasa
- 9:45 - 10:05 Improving the Usability of Liquid Motor Fuels: The Active Vapor Utilization System, by Marcus Ashford (The University of Alabama, Tuscaloosa AL, USA), Mebougna Drabo, Tad Driver, John Crawford and Michael J. Alff
- 10:10 - 10:30 Improving the Usability of Liquid Motor Fuels: Predicting Fuel Volatility via Artificial Intelligence Part I—Numerical Simulation, by Tad Driver (The University of Alabama, Tuscaloosa AL, USA) and Marcus Ashford

10:30 - 10:45 Break AIME Lobby

ASME ECTC 2009: ASME Early Career Technical Conference
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Saturday, October 3, 2009 (Continued)

Session VII--AIME Assembly Hall (Concurrent w/Session VIII)

- 10:45 - 11:05 The Use of Taguchi Quality Loss Function to Optimize Multiple Quality Characteristics in Laser Transition Welding Process of Thermoplastics, by Bappa Acherjee (Jadavpur University, Kolkata, West Bengal, India), Arunanshu S. Kuar, Souren Mitra and Dipten Misra
- 11:10 - 11:30 Optimization for Cost and Weight of a Forged Steel Crankshaft Using Geometry Variables, by Kartik D. Kothari (V.V.P. Engineering College, Rajkot, Gujarat, India) and Ramdevsinh L. Jhala
- 11:35 - 11:55 Symmetric-Galerkin Boundary Element Transient Analysis of the DSIF's For Particulate Composites, by V. Guduru(The University of South Alabama, Alabama, USA) and A.-V. Phan
- 12:00 - 12:20 Weld Bead Geometry and Metal Transfer in Synergic MIG Welding of 304L Stainless Steel, by Raghawendra P. S. Sisodia (Delhi Technological University, Delhi, India) and Reeta Wattal

Session VIII--AIME Planning Room (Concurrent w/Session VII)

- 10:45 - 11:05 A Multi-Pin End-Effector for a Robotic Colony Picker, by Donald R. Briner (Briner Technology LLC, Tempe AZ, USA), Ashish D. Sardhara and Thomas G. Sugar
- 11:10 - 11:30 A Survey of Uninhabited Underwater Vehicles (UUV), by Erman Baris Aytar (Izmir Institute of Technology, Izmir, Turkey) and Mehmet Ismet Can Dede
- 11:35 - 11:55 Design of Laboratory Scale Axial Flow Turbine, Asnaf Qadar (Pakistan Institute of Engineering and Applied Sciences, Islamabad, Pakistan) and M. Javed Hyder
- 12:00 - 12:20 Dynamic Model for Electrode Force and Electrode Expansion (Thermal Expansion and Contraction) in Resistance Spot Welding Machines, by Syed Asad Ullah Shah (Myongji University, Yongin, South Korea) and Hina Ihsan

12:30 Lunch and Distribution of Honoraria--AIME Lobby