

Student Poster Competition

Meet the Next Generation of Automotive Composites Engineers

The SPE® ACCE is once again hosting a student poster competition, which showcases emerging composites technologies for automotive and ground-transportation applications. This year's contest is the largest in the conference's history with 30 graduate students (nearly double last year's 16) representing 18 universities in the U.S., Canada, and the Republic of Korea (nearly double the 10 schools participating in last year's competition). Students of winning posters judged to be in the Top 3 of the show will receive plaques at a formal recognition ceremony during lunch on the second day of the conference, and all students will receive monetary prizes to help defray travel expenses, courtesy of competition sponsor, INVISTA Engineering Polymers.

Explaining why the company decided to support this year's competition, Kurt Burmeister, executive vice-president, INVISTA Engineering Polymers said, "Inspiring future leaders to innovate with passion and find fulfillment in everything they do are core principles at INVISTA. As the auto industry continues to seek innovative solutions to solve today's challenges, we look forward to seeing the students' great ideas and creativity throughout this competition."

Judges made up of media, industry experts, and SPE board members will review all posters with student authors on the first day of the conference. Any attendee of this year's conference may participate in the judging (please inquire at the front desk for more information on how to become a judge). Students and their posters will be ranked according to 9 criteria:

- Content (student and poster demonstrate clarity of topic, objectives, and background);
- Motivation for research and technical relevance to conference theme;
- Methodology and approach to problem;
- Quality of proposed research results/findings;
- Conclusion are supported by information presented;
- Presentation (display aesthetics are pleasing and there is a logical flow between sections);
- Knowledgeable (presenter has a good grasp of the subject);
- Understandability (poster is effective even without student being present to explain it); and
- Overall rank vs. other posters and presenters.

Since 2008, the SPE ACCE poster competition has been organized annually by Dr. Uday Vaidya, SPE Composites Division board member and education chair, and professor and director-Engineered Plastics & Composites Group, Department of Materials Science & Engineering at University of Alabama at Birmingham (UAB). This year he is joined by Dr. Leonardo Simon, professor, Chemical Engineering Department, University of Waterloo and also a co-organizer for both the Nanocomposites and Bio & Natural Fiber Composites sessions at this year's conference; and

Dr. David Jack, professor, School of Engineering & Computer Science, Baylor University.

Topics, student authors, and schools accepted into this year's competition include:

1. Andrew Anstey, Sudhakar Muniyasamy, Murali Reddy, Manju Misra, & Amar Mohanty, **University of Guelph**: *Processability and Biodegradability Evaluation of Poly(butylene succinate) (PBS) Green Composites with Biofuel Co-Products for Automotive Interior Application*
2. Birat KC, Mohini Sain, & Jimi Tjong, **University of Toronto**: *Rapid Prototype Development of Bio-Composite Engine Beauty Cover*
3. Mark J. Cieslinski, Kevin J. Meyer, John T. Hofmann, & Donald G. Baird, **Virginia Tech**: *Determining Orientation Model Parameters Independent of Processing Flows for Long, Semi-Flexible Fiber Composites*
4. Md. Mahmudur Rahman Chowdhury, Mohammad Washim, & Mohammad Kamal Hossain, **Tuskegee University**: *Interfacial Improvement of Nanophased Jute Fiber Reinforced Green Composites by Surface Modification*
5. M. Doody, J. Johrendt, & B. Minaker, **University of Windsor**: *Design and Development of a Composite Automotive Anti-Roll Bar*
6. Eugene Enriquez, Singaravelu Vivekanandhan, Amar K. Mohanty, & Manjusri Misra, **University of Guelph**: *Producing a Novel Green Polymer Blend from Poly(trimethylene terephthalate) (PTT) and Biobased Polyethylene (BioPE) for the Creation of Lightweight Composite Materials for Automotive Applications*
7. Stephanie Fierens, Mahmood Haq, Leonardo da Costa Sousa, & Venkatesh Balan, **Michigan State University**: *Green Composites from Cotton-Gin Waste for Structural Applications*

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8. Brian M. Greenhoe, Mitchell Woellner, & Jeffrey S. Wiggins, **University of Southern Mississippi**: *Dispersion and Stabilization of MWCNTs in an Epoxy Thermoset Prepolymers using Continuous Reactors*
9. Md. Ekramul Islam, Mahesh Hosur, Muhammad M. Rahman, & Alfred Tcherbi-Narteh, **Tuskegee University**: *Elevated Temperature Performance of Epoxy Composites Modified with Reactive Polyol Diluent and Multi-Walled Carbon Nanotubes*
10. Ninad Joshi & Steven Donaldson, **University of Dayton**: *Optimization of the Amount and Position of Unidirectional Carbon Fiber in a Glass Fiber / Carbon Fiber Hybrid Box Beam to Achieve Desired Bending Stiffness*
11. ByeongJoo Kim, Biplab Kr Deka, Gu-Hyeok Kang, Hye Gyu Kim, Hyung Wook Park, Young-Bin Park, Aeri Oh, & HeeJune Kim, **Ulsan National Institute of Science and Technology (UNIST)**: *Processing and Characterization of Continuous Carbon Fiber-Thermoplastic Composites Reinforced with Carbon Nanotubes and Exfoliated Graphite Nanoplatelets*
12. Alper Kiziltas, Yousoo Han, & Douglas J. Gardner, **University of Maine**: *Carrier Systems for Cellulose Nanofibrils in Hydrophobic Polymer Composites for the Automotive Applications*
13. Esra Erbas Kiziltas, Alper Kiziltas, & Douglas J. Gardner, **University of Maine**: *Optical Applications of Cellulose Nanocomposites for the Automotive Industry*
14. Ben Lewis, Carlton Metcalf-Doetsch, & David Jack, **Baylor University**: *Consideration of the Macro Processed Part Performance of Short-Fiber Thermoplastic Composites Due to Selection of Fiber Interaction Model*
15. John Michael Lindahl & Gregorio Vélez-Garcia, **University of Tennessee & Oak Ridge National Laboratory**: *Fused Deposition Modeling using Modified Thermoplastics*
16. Sam Lukubira, Ozgun Ozdemir, & Amod A. Ogale, **Clemson University**: *Melt Spinning of Soy Flour Filled Polyethylene Fibers*
17. Tanjheel Mahdi, Md. Ekramul Islam, & Mahesh Hosur, **Tuskegee University**: *Evaluation of Impact Response of Carbon Fiber Reinforced Epoxy Composites Modified with Hybrid Nanoparticles*
18. Spandan Mishra, Arda Vanli, & Chiwoo Park, **FA&M University – Florida State University (FAMU-FSU)**: *Constrained Principle Components Analysis Method for Damage Quantification with Lamb Wave Sensors*
19. Marlon Morales & Amod A. Ogale, **Clemson University**: *Rapid UV-Assisted Stabilization of Polyacrylonitrile-Based Carbon Precursors for Carbon Fiber Production*
20. Makoto Schreiber, Singaravelu Vivekanandhan, Peter Cooke, Amar K. Mohanty, & Manjusri Misra, **University of Guelph & New Mexico State University**: *Green Sub-Micron Diameter Carbon Fibres from Lignin for Automotive Applications: A Novel Study on Precursor Materials, Treatments, and Carbonization*
21. Timothy Polom, Prabhu Rajagopal, Mahmoodul Haq, Krishnan Balasubramanian, & Lalita Udpa, **Michigan State University**: *The Feasibility of Rayleigh Guided Wave Utilization for Remote Inspection*
22. Jacob Ripberger, Anton Khomenko, Mahmood Haq, Nick Gianaris, & Gary Cloud, **Michigan State University**: *A Tailorable Fastening System for Dissimilar Material Joining*
23. Matthew Smyth, Vida Poursorkhabi, Amar K. Mohanty, Stefano Gregori, & Manjusri Misra, **University of Guelph**: *Piezoelectric Poly(lactic acid) (PLA) Bioplastic Hybrid Microfibre as a Novel Source for Sustainable Green Energy for Potential Automotive Application*
24. Michael Snowdon, Amar Mohanty, & Manjusri Misra, **University of Guelph**: *Melt Processing and Characterization of Nano-Bio-Composites made from Poly(butylene succinate) Bioplastic and Nano Carbon Black for Transportation Application*
25. Sarah Stair & David Jack, **Baylor University**: *Non-Destructive Testing of Carbon Fiber Laminates – Experimental Validation of Manufacturing Induced Curvature Predictions*
26. Byron Villacorta & Amod A. Ogale, **Clemson University**: *Carbon Nanoparticle-Based Polyethylene Nanocomposites for Enhanced Electromagnetic Shielding*
27. Alexis Wagner, Vida Poursorkhabi, Amar K. Mohanty, & Manjusri Misra, **University of Guelph**: *Novel Porous Electrospun Fibers from Blends of Poly(L-lactic acid)/poly(3-hydroxybutyrate-co-3-hydroxyvalerate) for Advanced Air Filters in Automotives*
28. Benjamin Willis, Matthew Record, & Michael Scott Carpenter, **University of Alabama at Birmingham & Bates College**: *Metal-Composite Hybrids for Automotive Applications*
29. Aaron Wright & Gregorio Vélez-Garcia, **University of Tennessee and Oak Ridge National Laboratory**: *Testing for Fused Deposition Modeling*
30. Meng Zhang & Amod A. Ogale, **Clemson University**: *Carbon Fibers Derived from Sustainable Precursors*

Please join us in welcoming the students and taking a good look at their hard work, which will be on display throughout the conference in the Crystal/Onyx Ballroom. This provides the students with an excellent opportunity to meet and talk with members of the automotive composites community and learn what it is like to work as an engineer or scientist in this field. It also provides OEMs and their suppliers with the opportunity to meet the next generation of automotive composites engineers and scientists and potentially to hire them.