

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 by graduate and undergraduate students at a number of universities. As of press time, this year's contest features 19 graduate and 2 undergraduate students from 8 U.S. universities. Students of winning posters judged to be in the Top 3 in both graduate and undergraduate categories will receive plaques at a formal recognition ceremony during lunch on the second day of the conference, and all student participants will receive monetary support to help defray travel expenses, courtesy of competition sponsor, INVISTA Engineering Polymer Solutions.



"As a company whose success is dependent upon building a culture of entrepreneurship," notes Dr. Vikram Gopal, director-Technology & Product Marketing, INVISTA Engineering Polymer Solutions, "we recognize the importance of supporting tomorrow's leaders in their own entrepreneurial innovations. Bringing composite technology to the forefront of the automotive industry is a mission we share, and we're excited to see the creative ideas these students will bring to the industry." Gopal will present winning graduate and undergraduate students with their plaques.

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. **Interested conference attendees may participate in the competition by inquiring at the front registration area about how to become a judge.** Students and their posters will be ranked according to the following 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.

Topics, student authors, and schools accepted into this year's competition at press time include the following (names of student presenters are underlined):

Graduate Students

- 1) Sarah Stair and David Jack, **Baylor University**: *Non-Destructive Characterization of Ply Orientation and Ply Type Carbon Fiber Reinforced Laminated Composite*
- 2) Jing Jin and Amod A. Ogale, **Clemson University**: *Carbon Fibers Derived From Bi-Component Precursor*
- 3) Ozgun Ozdemir and Amod A. Ogale, **Clemson University**: *Processing and Properties of Micro-Textured Boron Nitride/Polyethylene Nanocomposite Films*
- 4) Jake Christoph and David Jack, **Baylor University**: *Impact Resistant Composite Laminates with Vertically-Aligned Carbon Nanotubes*

- 5) Vertonica F. Powell-Rose, Mahesh Hosur, Alfred Tcherbi-Narteh, and Shaik Jeelani, **Tuskegee University**: *Investigations into the Process and Performance of Surface Modified Woven Flax Fiber Bio-Based Composites for Automotive Applications*
- 6) Vignesh Kumar Gnanasekar, **University of Dayton**: *Prediction of Thermal Stress in Carbon Nanofiber/Thermoplastic Polyurethane Nanocomposite under Resistive Heating*
- 7) Siddhartha Brahma, **University of Alabama at Birmingham**: *Comparison of Discontinuous Carbon Fiber Thermoplastics Process via Different Routes*
- 8) Andy Vander Kloek, Thomas Qualman, Xinran Xiao, Norbert Mueller, **Michigan State University**: *Manufacturing a Composite Woven Compressor Wheel*
- 9) Danghe Shi and Xinran Xiao, **Michigan State University**: *An Enhanced Composite Damage Model for Crashworthiness Prediction*
- 10) Danila Kaliberov, **University of Alabama at Birmingham**: *Long Fiber Thermoplastics Threaded Fasteners*
- 11) Markus Downey, **Michigan State University**: *Optimized Fiber-Reinforced Polymer Composites for Lightweighting: Toughening of Aromatic Epoxy Polymers via Aliphatic Epoxy Copolymers*
- 12) Nicholas Kamar, **Michigan State University**: *Interlaminar Reinforcement of Glass Fiber/Epoxy Composites with Graphene Nanoplatelets*
- 13) Anup Mallikarjuna Shastry and Bopaiah Ittira Biddappa, **Clemson University**: *Study of Areca/Coir-reinforced Epoxidized Pine-Oil Laminated Composites*
- 14) MingJung Joo and Mark Soucek, **University of Akron**: *Self-Stratifying Coatings*
- 15) Muhammad Rahman, **Cornell University**: *Natural Fiber Composites for Automotive Applications*
- 16) Blake Heller and Douglas Smith, **Baylor University**: *Fiber Orientation Prediction in Fused Deposition Modeling Nozzle Flow*
- 17) Md. Ekramul Islam, **Tuskegee University**: *Effect of combining MWCNTs and Nanoclay on the Tensile, Flexural and Low-Velocity Impact Behavior of Carbon/Epoxy Composites*
- 18) Avinash Akepati, **University of Alabama-Tuscaloosa**: *Experimental and Numerical Investigation of Fracture Toughness Enhancement in Nano-Graphene Reinforced Epoxy for Aerospace and Automotive Applications*
- 19) Qiushi Wang, **University of Alabama at Birmingham**: *Fiber Content Estimation in Carbon Fiber Composites*

Undergraduate Students

- 1) Caleb Heimsoth and David Jack, **Baylor University**: *The Use of Non-Destructive Testing with High-Frequency Ultrasound on Curved Carbon Fiber Laminates*
- 2) Kelly Krumm, **Clemson University**: *PLA-Areca Fiber Composites: Next Generation Sustainable Materials for Automotive Applications*

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). For the second year, he was supported by Dr. Leonardo Simon, professor, Chemical Engineering Department, University of Waterloo and also a co-organizer for both the Nanocomposites and Sustainable Composites sessions at this year's conference; and Dr. David Jack, professor, School of Engineering & Computer Science, Baylor University and a co-organizer of the Virtual Prototyping & Testing session.

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 Hall C (where lunch is served). 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.