

welcome from the 2014 SPE[®]



As conference co-chair, I welcome you to 14th-annual **SPE[®] Automotive Composites Conference and Exhibition (ACCE)** on behalf of event hosts, the Automotive and Composites Divisions of the Society of Plastics Engineers International. It is truly an exciting time for the automotive composites community with so many advances in technology and new applications coming into serial production, such as the 2014 model year (MY) *Chevrolet Corvette Stingray* sports car from General Motors Co. and the 2014 MY BMW i3 electric city car from BMW AG. Lightweighting is a key target for vehicle OEMs to meet various fuel economy, CO₂ emissions, and safety regulations around the globe. And polymer-matrix composites are one of the prime technologies that will enable automakers to meet those goals. As evidenced by the explosive growth in the ACCE program in the past three years, there is a strong thirst for knowledge and understanding about polymer composites by the OEM and supplier communities. Participants in this year's ACCE are eager to show that pragmatic, cost-effective solutions for vehicle OEM needs are already available; hence, the theme of the 2014 event, **"COMPOSITES: Meeting Today's Automotive Needs."**

While preparing this message, I took some time to review prior ACCE programs all the way back to the beginning in 2001. It is truly amazing the changes to this event that have occurred since that time. From my first tenure as conference chair in 2002, ACCE has progressed from 13 sponsors and a 16-page program guide, less than 150 attendees and about 50 technical contributions to more than 65 sponsors, an 80+-page program guide, more than 900 attendees, and almost 90 technical contributions. In those early days, technical papers

focused on topics such as short-fiber thermoplastic injection and the cosmetics of non-structural SMC applications with glass fiber. Those technologies have matured into mainstream use today. In 2014, technical issues are more challenging for the OEM and Tier suppliers. However, the automotive composites community continues to bring advanced solutions that we will learn about at this year's ACCE on topics such as structural carbon fiber SMC, automated thermoplastic tape placement, process modeling, and production of "body-in-black" carbon fiber structures. This year at ACCE you will see:

- Over 80 peer-reviewed technical presentations along with 5 keynotes from industry leaders;
- An Executive Panel Discussion on "*Lightweighting and the Multi-Material Car*,"
- More than 20 posters from graduate and undergraduate students on scientific innovation in composites in Exhibit Hall C with financial support from INVISTA Engineering Polymer Solutions;
- A continuation of our well-attended Tutorials with sessions this year on *Long-Fiber Thermoplastics* and *Nanotechnologies*;
- Our largest-ever sponsor exhibition in the Diamond Ballroom as well as a new Parts Showcase area in Exhibit Hall C;
- Two Networking Receptions sponsored by BYK USA, Inc. and Momentive Specialty Chemicals, Inc.;
- Our third SPE ACCE Composite Parts Competition including the *People's Choice Award* on which all participants can vote using the ballot included with your program guide;
- Our *Best Paper Awards* now renamed in honor our ACCE colleague — Dr. Jackie Rehkopf — who regrettably lost her battle with cancer and passed away this summer;
- And three student scholarship awards thanks to sponsorship from the Michigan Economic Development Corp.

It is critical to note that this event could not happen without the dedication of members of the conference committee who volunteer countless hours to put ACCE together year round. In particular, long-serving ACCE Executive Committee members, Peggy Malnati, Teri Chouinard, Dale Brosius, Fred Deans, Antony Dodworth, and Creig Bowland, deserve special recognition for their extensive contributions to this event. For those efforts, I am grateful. And, of course, the ACCE committee thanks all the conference sponsors, exhibitors, presenters, keynote speakers and panel members who make ACCE such a "must-see" event.

I thank you for participating in the 2014 ACCE event. Please contact me or other committee members if you have any questions, need help, want to provide feedback, or if you would like to join the ACCE team in the future. I hope you enjoy the conference and find ACCE a worthwhile event.

Sincerely,

Michael Connolly

Co-Chair - 2014 SPE Automotive Composites Conference and Exhibition
Huntsman Polyurethanes

COMPOSITES



AUTOMOTIVE

ACCE Conference Chairs

Dear Delegates,

It's been another great year for automotive composites. For once all the pieces are falling into place and we can celebrate some significant milestones:

- It's now possible to produce 300 carbon composite parts per day and to accomplish this, members of the supply chain have all pulled in the same direction and delivered the processes, materials, and tools to make it possible.
- A large amount of effort has gone into developing faster, more accurate simulation tools so we have better predictions of what fibre and resin are doing in real time – not only during manufacturing, but also during various types of loading events including frontal, rear, and side crash.
- In Europe, a major effort has gone into looking at the complete birth-to-death approach for designing, building, then dismantling end-of-life vehicles in order to recover as much material in a reusable and recyclable condition as possible, an effort that not only reduces waste but also helps drive down costs.
- Joining multi-material systems remains a challenge that is driving interesting new solutions that reduce dependency on mechanical fixings; however, this approach also can cause problems when repairs are needed because bonded joints are more difficult to disassemble easily, and the scope of that problem is multiplied as composite parts get bigger and are joined to more structure-critical components.
- Other interesting trends include combining reinforcements in discontinuous formats with moulding compounds to create some clever designs that move away from what most people's comfort zones are in terms of traditional composite theories – but in the real world, these new material/design combos are working and working well.

These are not trivial changes and they were not accomplished easily or by the work of just a few individuals. We should step back for a moment and celebrate them, then get back to the business of making automotive composites even better, stronger, faster to process, and more cost-effective than other lightweight materials.

Cheers,

Antony Dodworth

Antony Dodworth
Co-Chair - 2014 SPE Automotive
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Dodworth Design



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MEETING TODAY'S AUTOMOTIVE NEEDS