

NEWSLETTER

February 2018

Tire Society – What's Happening

It's time to renew your Tire Society membership!

Renewing your Tire Society membership is easy. Simply follow this link to the [Tire Society website](#) and click on [Membership](#) in the blue ribbon near the top of the page.

Your annual membership includes a subscription to [Tire Science and Technology](#), the world's leading technical journal dedicated to tires, providing readers authoritative, critically reviewed articles that address the development and application of experimental, analytical, or computational science in the areas of adhesion, composite materials, constitutive modeling, contact mechanics, cord mechanics, curing, design theories, durability, elastomers, finite element analysis, force and moment behavior, groove wander, heat build up, hydroplaning, impact, manufacturing, mechanics, noise, pavement, performance evaluation, racing, rolling resistance, snow and ice, soil, standing waves, stiffness, strength, traction, vehicle dynamics, vibration, wear, and others. When you register, you can choose to receive either a printed copy of the journal that includes online access as well, or online access only.

There are discounted membership rates for retirees and students. Click on the **Join or Renew Today!** button at the lower left of the screen and then enter your Tire Society username and password to login to your account. After you've entered your credit card information and completed your registration, you can print a receipt using the **Print** button on the registration webpage. You will also receive a confirmation email.

If you'd prefer to pay for your registration using a check rather than a credit card, you can also renew by following this [link to a printable registration form](#) available at our website. Mail your completed form and payment to:

The Tire Society
PO Box 7065
Lawrence KS 66044-7065

For 37 years, the Tire Society has proudly served the Tire industry in its core mission to disseminate tire science and technology knowledge. Thank you for your continued support of the Tire Society by renewing your membership in our organization. If you have any questions or if we can be of assistance in the membership renewal process, please contact the Tire Society business office at 785-865-9403.

And to submit your Abstracts for the 2018 Tire Science Conference!

The Call for Papers for the 37th Annual Conference on Tire Science and Technology to be held September 11 & 12, 2018 in Akron, Ohio has been issued with a deadline of March 16, 2018 for submitting abstracts. Papers are being accepted in all related areas including **Tire Performance, Tire Materials, Tires and Vehicles as a System, Emerging Technologies, Tire Road Interaction, Tire Industry Trends and Future, and New Light on Tire Technology**. A new session topic for this year is **Data Analytics and "Big Data"**. Also, be sure to check out the rules and guidelines for the Student Paper session (as highlighted in the December newsletter) in which students are eligible to compete for the **Best Student Paper** award and a \$500 scholarship.

For more information and instructions for submitting abstracts, details about the Student Paper Award, and more information about the Conference, check out the following links: [Call for Papers](#), [2018 Conference Info](#), [Student Paper Award](#) or contact us at: conference@tiresociety.org, NathanB@nexenustc.com, or tst@allenpress.com

The important and evolving role of Tire Conference Session Chairs

As at most technical conferences, the annual Tire Society Conference is organized by each year's Program Chair into a series of sessions in which several papers (typically three to four) are grouped together around a similar topic area. Although some session topics, such as "**Simulations**" and "**Tire Performance**" have become staples of the Conference, the exact list of session topics each year is dependent upon the specific papers that are submitted in response to the Program Chair's [Call for Papers](#) issued earlier in the year.

Last Year's Slate of Conference Session Chairs

- Tire Performance: **Brian Steenwyk**, *Bridgestone*
- Material Technology: **Janice Tardiff**, *Ford Motor Co.*
- New Light on Tire Technology: **Celal Batur**, *Univ. of Akron*
- New Light on Tire Technology: **Bart Kimble**, *Goodyear*
- Simulations: **Kejing Li**, *Hankook Tire Co.*
- Simulations: **Chris Robertson**, *Endurica*
- Tire Vehicle System: **Yusheng Chen**, *Cooper Tire*
- Experimental Technologies: **Matt Schroeder**, *Cooper Tire*

In recent years, the role of the Session Chair has primarily involved serving as the emcee for their specific session, which includes meeting with each of the scheduled presenters in their session and getting to know a bit about them and their work, in order to deliver an effective introduction for each one during the Conference session.

The Tire Society Executive Committee (or XCOM, which includes the Society's elected Officers and several Members-at-Large), along with several of the Conference Chairs from recent years, have been discussing proposals aimed at improving our annual Conference to further increase its value to our members. Several of these proposals are intended to address feedback from Conference participant surveys that indicate that our members are looking for higher quality papers and the addition of new topic areas to the Conference.

One direction in which we'd like to move is a transformation of the role of the Session Chair from emcee to an active developer of their conference session in coordination with the Conference Chair. As described in the revised **Session Chair Job Description**, posted on the [Volunteer](#) page at the Tire Society website, the vision is that Session Chairs would themselves be technical experts in the topic area of their session who would solicit and evaluate presentations and papers for their session based on their contacts, peers, and knowledge of the work being done in the field of their topic area. Are you someone who would consider serving the Society in this role, working with the Conference Chair in the production of our Conference?

This approach would also facilitate the addition of new subject areas to the conference; e.g. the flexibility to address a very timely topic that may only generate interest for a year or two. Some of the people we might tap to serve as Session Chairs might not today even be members of the Tire Society, but because of their technical expertise and their network of technical experts in their field, their inclusion in our Conference could further our mission to increase and disseminate tire knowledge. You can also help by reaching out to these non-member experts, who may be from universities, automobile companies, or technical service providers the tire industry, and let them know about these opportunities. Maybe a future Session Chair is sitting in the office next to yours at this moment.

Since this level of involvement in session development will require adequate time for planning and organization, it is not a format that can be implemented for this year's conference, however, potential Session Chairs for the Conference in September 2019 need to be identified soon. This is an excellent service opportunity for Tire Society members from any place in the world to make a difference in the quality of the Tire Society Conference. If you are interested or have any questions, please contact the Tire Society Conference leadership team via email addressed to: tst@allenpress.com

Highlights from the Journal

Effect of Filler-Polymer Interface on Elastic Properties of Polymer Nanocomposites: A Molecular Dynamics Study

Ma, C., Ji, T., Robertson, C. G., Rajeshbabu, R., Zhu, J., and Yalin, D., *Tire Science and Technology, TSTCA*, Vol. 45, No. 3, July–September 2017, pp. 227-241

A coarse-grained model has been built to study the effect of the interfacial interaction between spherical filler particles and polymer on the mechanical properties of polymer nanocomposites. The polymer is modeled as bead-spring chains, and nano-fillers grafted with coupling agent are embedded into the polymer matrix. The potential parameters for polymer and filler are optimized to maximally match styrene-butadiene rubber reinforced with silica particles. The results indicated that, to play a noticeable role in mechanical reinforcement, a critical value exists for the grafting density of the filler-polymer coupling agent.

After reaching the critical value, the increase of grafting density can substantially enhance mechanical properties. It is also observed that the increase of grafting density does not necessarily increase the amount of independent polymer chains connected to fillers. Instead, a significant amount of increased grafting sites serve to further strengthen already connected polymer and filler, indicating that mechanical reinforcement can occur through the locally strengthened confinement at the filler–polymer interface. These understandings based on microstructure visualization shed light on the development of new filler polymer interfaces with better mechanical properties.

Read the [entire paper](#) in the most recent issue of the *Online Journal*.

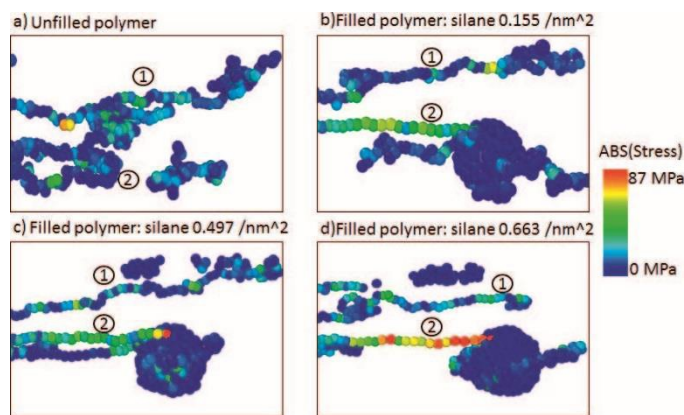


FIG. 7: Stress distribution of polymer chains in unfilled and filled polymer at the 400% strain.

Tire Society Benefits

Did you know?

Want to follow-up on a conversation you struck up with someone you met at last year's Tire Conference? Did time run out for questions following a particular presentation that interested you – but you'd still like to ask the author a question? Did you know that, along with your membership in the Tire Society, you have access to a Member Directory of contact information provided by each member? Please use this member directory responsibly and professionally.

- **Login** – To access the Member Directory, you'll first need to login to your Tire Society account on the website
- **Click on your name** in the upper right corner (next to the Logout button).
- **Member Services** – Click on the 3rd item on the left under Member Services with the heading "**Member Directory**"
- **Search** – you can search the directory using any field, or view a short list of last names by picking any letter.
- **Contact Info** – From the list of names reported for your search, click on any field in the row of data for the person for whom you're looking and their contact information will be presented.
- **Privacy** – Networking with your tire science colleagues is an important benefits of your membership in the Tire Society, however, you have control of which information is available to be viewed in the Member Directory by editing your contact information under the **Update Address** section of your "**My Profile**" page under **Member Services**.

Meet your Tire Society colleagues:

Janice Tardiff

Janice Tardiff leads the elastomer material research at Ford Motor Company. She holds a Chemistry degree from Kalamazoo College and an advanced degree in Chemical Engineering from Michigan State University. She has been at Ford Motor Company for 25 years, conducting project work focused primarily on developing and implementing advanced materials technologies into automotive materials. Her positions within Ford have varied from Research to Manufacturing, giving her experience in the development, implementation, and maintenance of new technologies in the automotive industry.

As a relative newbie to the tire world, having spent most of her career working on paint materials and application, Janice is impressed with the level of technology in tires and the variety of disciplines required to continue the advancement of tire technology. For the past three years Janice has chaired the Materials session of the Tire Society Conference.

"I have enjoyed the opportunity to learn and discuss the latest tire technologies at Tire Society. We are in a period of change related to mobility and the technical exchange at Tire Society is a wonderful opportunity to share ideas related to how tires will impact future mobility."



Janice Tardiff

In her free time Janice enjoys spending time with her husband and three daughters and likes to be outdoors either hiking, skiing, or boating. Recently she has started new hobbies of bread making and French cooking – different recipes from compounding rubber but recipes nonetheless.