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Section Chair Thoughts

By Aaron Heintz

As I write this, another year is drawing to a close and looking back on what has gone on in the Central IL SAE, I am thankful for an organization that provides so many opportunities for its members to network and grow professionally.

During the first half of the year, we supported a great Baja event sponsored by CAT at the Edwards Demonstration Center. Many Central IL section members volunteered for the event and we are very proud of their efforts. Furthermore, the section held another successful Illinois Central College Design Competition in November, along with a couple of other informational speaker events. Unfortunately, we were unable to put on a fall autocross event due to issues outside of our control; however, we are working hard on bringing the event back in the spring! Program chair Justin Kendig has put together a great lineup of events for 2012 which can be found on page 5 of this Centroid.

Looking forward to 2012, the section is still in need of a chairperson for A World in Motion (AWIM). We have a great base of enthusiastic volunteers and engaged teachers, but need a volunteer to coordinate the existing relationships. Additionally, the AWIM chair would pursue expansion of the Central IL program to more classrooms, as we have had to turn away volunteers due to a shortage of participating schools. This position is a great way to expand your professional and community network. If interested or know someone who would be,

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please contact me at heintz_aaron_g@cat.com. Previous SAE experience is not necessary, just a positive attitude and the desire to introduce math and science to young students. More information on the program is available at www.awim.org.

We need feedback from members like you to make the Central IL section valuable! If you have a great idea for a monthly program, a topic to publish in the Centroid, or simply a suggestion to improve our operations, do not hesitate to contact me or the section via the "Contact Us" link on www.sae-cis.org. Furthermore, CIS now has a group on LinkedIn, "SAE Central Illinois Section". Check it out and feel free to join. Also check out the SAE International website at www.sae.org for industry news, benefits of membership, the EngineerXchange global network, and so much more.

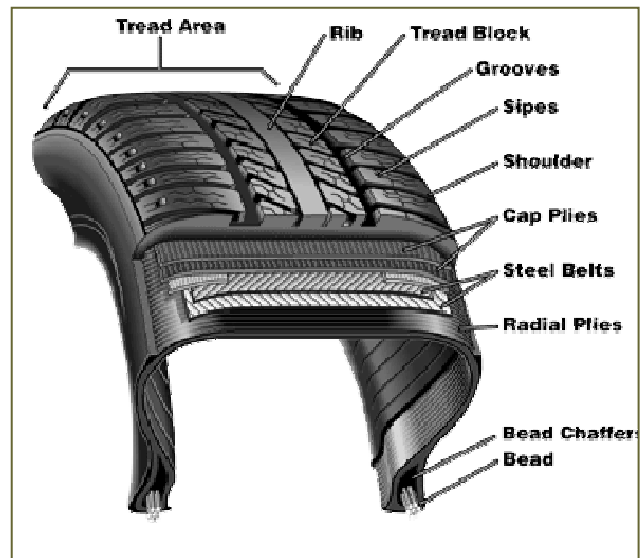
Finally I would like to say thanks to the Central IL governing board for all of their hard work this past year and in advance for the year ahead. To the members, thank you for your participation in section events and best of luck in 2012. Hope to see you at an event soon!

Vehicle Crash Reconstruction

By Justin Kendig

How do you make physics fun? You put it in terms of a vehicle crash and instantly catch everyone's attention. This is exactly what Gary Derian, P.E., did when he visited Peoria on Wednesday, October 26, 2011. Gary is a mechanical engineer with over 20 years of industry experience in vehicle and tire engineering, vehicle crash reconstruction, and power system design. His presentation centered on how his colleagues and himself at Robson Forensics reconstruct crashes, investigate tire failures, and analyze data from automotive black boxes to gain insight into what a vehicle was doing seconds before an incident.

Approximately 30 SAE members, student members, retiree members, and guests enjoyed the dinner event held in Caterpillar's Building LC Auditorium. Gary started his discussion by ensuring the audience understood basic physics principles including laws of motion, acceleration, and how energy is distributed during a crash. Next, he went into crash reconstruction itself and how using various indicators or clues such as tire skid marks can be leveraged to reconstruct the accident. One of the major cases Gary and his



team deal with are claims against tire manufacturers. Using the before mentioned principles and clues, Gary can determine who is at fault if a tire failure occurs and causes an accident. We've all heard of the Ford Explorer - Firestone problem from years ago, but oftentimes incorrect installation or poor maintenance are to blame.

Other interesting topics Gary covered included the safety elements built into a vehicle and how effective each is at protecting the life of passengers within the vehicle. This included statistics about airbags and seat belts, and the combination of both. He also discussed how effective these safety features are at different speeds and how technology continues to improve since the first safety features were introduced by Chrysler in 1949.

To thank Gary for coming to Peoria and discussing his profession with the audience, CIS presented Gary with a personalized desk clock. Be sure to check out other upcoming events at www.sae-cis.org.

Illinois Central College Design Challenge

By Niranjan Londhe

The CIS organization was once again a proud sponsor of the Illinois Central College (ICC) Student Design Competition. The event was held on November 17 in the Lorene Ramsey Gymnasium on the East Peoria ICC campus. The challenge is designed to give young engineering students an opportunity to test their knowledge of engineering principles and physics. Working in groups, students create trebuchets to a set of specific constraints and compete to launch a tennis ball the furthest. Some of the design constraints include requirements such as weighing less than ten pounds, costing less than \$50, and being completely powered by gravity, meaning



no springs or other forms of stored energy could be incorporated in the design.

Congratulations to Michael McMahan and Taylor Tang of "Perpetual Motion Squad." The winners ended up launching their tennis ball 89.5'!



Thirty nine teams with 116 participants competed as professors Steve Larson and Steven Portscher oversaw the event. Up for grabs was \$250 in cash prizes which were awarded to top three teams based on their best distance. The competition was won by team "Perpetual Motion Squad," consisting of Michael McMahan and Taylor Tang. They ended up launching their tennis ball 89.5' with the second place team, "Engin-uity" measuring in at 87.9'.

There was also a \$50 participants' award presented for originality, quality of design, and understanding of the underlying engineering concepts. The 'Murlin' trebuchet design won this award with four votes from all the competing teams with each team voting only once. The designs on display ranged from some fairly straight-forward adaptations of the hinged counter-weight design to a floating arm model.

As part of the event organizing committee for the past two years and a penchant spectator, I find that the accuracy continues to improve year after year. This was especially evident after the competition where professors donned clean room suits and challenged participants to hurl eggs at them using their trebuchets in the parking lot.

Learning about design, implementation, and team work are prizes in themselves that go well beyond just the simple cash awards. Kudos to the 116 competing participants and the sizeable spectators! Hope to see you again next year!



Program Forecast

The events listed below are currently being planned by the Program Committee of CIS-SAE. The event details are subject to change so please visit the website at www.sae-cis.org to stay informed. Also, if you would like to offer your assistance to help organize future events please contact Justin Kendig at Kendig_Justin_E@cat.com.

Power Sources for the Future

The CIS program committee is working with the Argonne National Labs to schedule a speaker to discuss the latest in Power Sources for the Future. Some of the potential topics include the pros and cons of various Green Energy sources, Nuclear Power, and Critical Infrastructure.

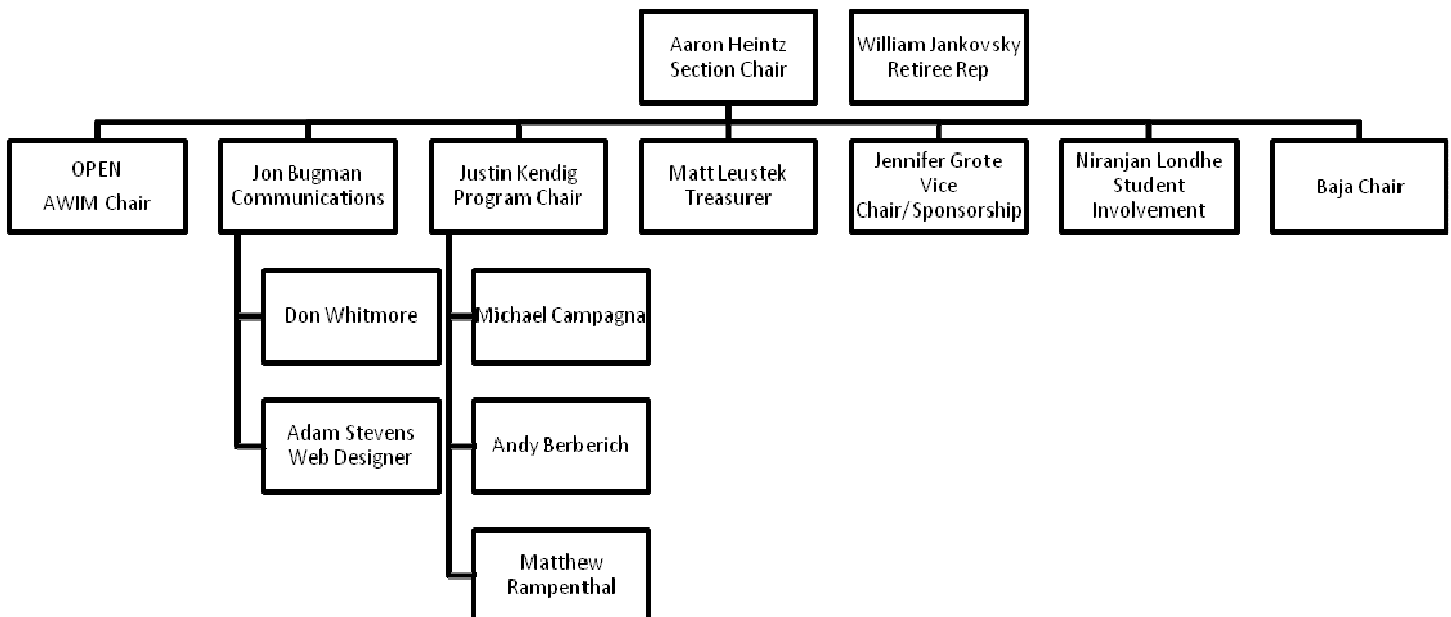
Nissan LEAF

The electric/hybrid car movement is slowly charging forward in the United States. Nissan has recently developed the 100% battery electric LEAF which offers zero tailpipe emissions, can travel up to 100 miles per charge, reach speeds up to 90 mph, and hold up to five passengers. The CIS program committee is working closely with the local Nissan dealership to schedule an event to discuss this movement and the LEAF in particular.

Autocross

After taking a year off due to Illinois State paper work issues, the Central Illinois Section of SAE and the Sports Car Club of America are planning to co-host a Spring Autocross event in Mossville, Illinois. Date and registration information for the event will be sent out once details have been finalized. In the past, approximately 70 participants have showed up to push themselves and their vehicles to the limits. This event is not only fun for the drivers; it is also a great event to be a spectator.

2012 SAE Governing Board



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