



Fueling Our Future Transportation Needs Presented By: Bill Chamberlin

Thursday, October 12th 2006



Program Dates

Saturday,
September 23
Precision
Driving School

Thursday,
October 12
Fueling Our
Future
Transportation
Needs

November
ICC Design
Competition

November
SAE Design
Experienced
Speaker

December
SAE Social
Event

January
X-Prize – The
\$10 Million
Prize

February
CAT OEM
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Topic of Discussion

Fueling Our Future Transportation Needs

Conventional transportation fuels are becoming increasingly strained motivating an aggressive search for alternatives, especially alternatives which can be domestically sourced. Our society has diverse energy choices. Biomass, coal, and solar or wind energy are among the resources which can be used to synthesize fuels including hydrogen, alcohols, and conventional type fuels. While availability and cost are critical; safety, environmental impact, storage properties, infrastructure, and national security must be considered. The talk will review past failed efforts to change our fuel sources and assess options for our future.

Guest Speaker

Bill Chamberlin spent 34 years in R&D at The Lubrizol Corporation involved in advanced crankcase lubricant applications. He retired in 2004. Advanced lubricant applications that Bill has worked on include: rotary engines, direct injection two-strokes, and alternatively fueled engines. In 2003 he was recognized as the Outstanding Chemist of the Year by the Northeast Ohio ACS Section. Bill was elected a Society of Automotive Engineers (SAE) Fellow in 1995. Bill has also been active in the SAE including Chair of the SAE Emerging Technology Committee, Chair of the Cleveland Section, and member of the SAE Sections Board. He holds 11 patents and has authored or co-authored 19 papers. He holds BA and MS degrees in chemistry from Miami University (Ohio).

Event Sponsor

Buckhorn Rubber Products, Inc.[®]

A Myers Industries Company



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Location:

Maxam ballroom on our 3rd floor
InPlay
316 South West Washington
Peoria, IL 61602

Schedule:

5:00 – 5:45 Networking (Cash Bar)
5:45 – 6:45 Dinner (Cash Bar)
6:45 – 7:30 Key Note Speaker
7:30 > Q&A

Food Choice is Fettuccini Alfredo or Roast beef
Cost is \$7.50 for SAE student members, \$11 for SAE members, and \$13 for Non members
RSVP by October 5th with Meal Choice at either 800-512-1919 or sae_reservations@yahoo.com

Event Sponsor:

Buckhorn Rubber Products, Inc.[®]

A Myers Industries Company

Founded in 1913, Buckhorn Rubber Products, Inc. is the leading manufacturer of rubber and plastic air intake hoses for the Mobile Off-Highway and Commercial Vehicle markets in North America. Other key products include hood latches, boots & bellows and anti-vibration mounts. In addition to custom and off-the-shelf rubber products, Buckhorn Rubber also has the ability to offer solutions in plastics that began with the advent of 3-D co-extrusion blow molding in 2000. Proprietary compounding and mixing is also done in-house, in addition to rubber-to-metal bonding. Buckhorn Rubber Products offers complete product and engineering support (www.buckhornrubber.com). An ISO / TS 16949 certified supplier and a division of Myers Industries.

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Dear SAE members,
Beginning in October 2006, we will no longer be sending out postcards to members in the e-mail distribution list. Please be sure to check out our website: www.saesections.org/cis/

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Event Lead Note:

Fellow SAE Members,

Gas prices may have dropped below \$3/gallon, but for how long? The October program: **Fueling our Future Transportation Needs** presented by William (Bill) Chamberlain will discuss this and other energy related topics, but....

First, let me introduce myself. I am a relatively new member of CIS–SAE. I joined Caterpillar, after finishing graduate school, nearly three years ago. Shortly after that I attended my first CIS-SAE meeting and quickly got involved, serving on the Program Committee helping to develop programs like this one.



This year I am serving as the Program Committee chair and have a great team with a mix of experienced veterans and rookies on the team. The mix of talent is great because of the new ideas combined with the experiences of the more senior members has blended a great array of programs. One of the new ideas was to survey section members to find out what they wanted to see in the programs.

The results were outstanding and have been used to drive this year’s program schedule and prepare ideas for next year’s programs. A few examples include the upcoming: Cat OEM Transmissions, Crash Investigation, and X-Prize programs. Two other new ideas include an end of the calendar year social event and a spring golf outing. All of this is being driven by the voice of our membership. On that note, look for an end of the year survey to help define programs for the following year.

Let’s talk about the present. October’s **Fueling our Future Transportation Needs** program is being presented William (Bill) Chamberlain. Bill is a member of SAE International’s “**Expert’s on Tour**” speakers list and we (CIS-SAE) are exceptionally excited to have here to talk about this very current and relevant topic. Please make sure to join us to here what Bill has to say.

Non- members: If you are interested in attending, not a problem – just RSVP. If you are interested in this topic and/or others, consider join SAE and CIS-SAE.

GMembers: Make sure to let us know what you think about this and other planned topics.

Look forward to seeing everyone there.

Regards,
Matthew Leustek
CIS – SAE Program Committee Chair



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Communication Note:

Fellow SAE Members,

I am Matthew Anderson, a member of the Communications Committee. This is my first year as a member of the Central Illinois Section as well as my first year as a SAE member. One of the main advantages of SAE is the networking. Since joining SAE, I have had the opportunity to interact with fellow Engineers in the Peoria area that I would not have had the opportunity if for not being involved in SAE. The Central Illinois Section also provides Programs that are sure to be informative and/or entertaining. Please join us every month for an exciting Program.



The Communication Committee has set several challenging goals for this year. One of the goals is to communicate the information of the upcoming Program one month in advance. With the successful completion of this goal, we hope to have great member involvement. Please join us on Thursday, October 12 for an especially informative Program.

Starting in November, the Communication Committee will be changing the way we deliver information. If you have an e-mail address, you will no longer receive a postcard in the mail. For those of you that do not have e-mail capabilities, you will still receive the postcard. The objective of this new initiative is to be more effective in our information distribution. Our website, www.saesections.org/cis/, will also be updated on a regular basis to bring you the most current information.

A special thank you to Communication Committee members; Steve Hofstetter, Communication Chair, Guillermo Herra and Ben Fong for all the help that they have provided to ensure that the Communication Committee delivers information in a timely manner.

If you have any SAE information that you need to get to the SAE membership, please do not hesitate to forward it to us at CIS_SAE_Communications@yahoo.com. If you have any information about related events of other organizations or topics of interest to our membership, please do not hesitate to forward it to us and we will consider including it in our next eCentroid.

Thanks for your continued support of SAE and as always, if you have any ideas about how we can improve, please contact us at CIS_SAE_Communications@yahoo.com and/or check out our www site at www.cis-saesections.org/

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Central Illinois Section Precision Driving Autocross

On September 23, 2006, The Central Illinois Section and the Lincoln Trail Region of the Porsche Club of America successfully organized and hosted a precision driving event for Peoria, IL area automotive enthusiasts. Regardless of the threat of inclement weather, all 40 of the limited spots were filled. In addition to local enthusiasts, it served as an excellent opportunity for CIS universities, Bradley University and the University of Illinois, to gain valuable seat time in their Formula SAE cars. It was no surprise that first and second place fast time of the day went to one of the FSAE cars. Fastest time of the day went to Dave Cox from the University of Illinois at Champaign/Urbana in their 2006 competition car.

The event was held at Caterpillar’s Technical Center in Moxville, IL under the menacing skies of 60% chance of rain. The response to the event was outstanding with Jim Roal overseeing the pre-registration of 60 plus participants. “We were hoping for the best,” commented Andy Berberich, event coordinator for CIS SAE. “SAE and the PCA had worked entirely too hard to cancel the event due to the chance of rain. We were all pleasantly surprised with the outcome of the weather.” The day started off with Marty Urbanc setting up the course under overcast skies with the threat of rain. In order to ensure a fun and safe course, Urbanc took extra time with the layout. LTR PCA president Steve Davis and Berberich performed the driver’s meeting. The main focus of the driver’s meeting was fun and safety. To conclude the driver’s meeting, the different run groups were escorted through the course during the mandatory course walk through. This walk through was different, because the course guides gave detailed and specific instruction on how to effectively drive the course. The instruction was focused towards novice drivers and spectators who were not able to participate.



The first group of 20 participants completed their first three runs under driver conditions. The second run group was approximately half way through their session when the rain started. Luckily, the rain was not very heavy and primarily got everything wet. This created another opportunity for participants to learn vehicle control under wet conditions. The rain barely lasted an hour, but was enough to wet down the course. Fortunately, the sun peaked through the clouds periodically after the rain had stopped. Everyone who bared the risk of rain, were able to complete all six runs that were promised to them.

The competition was close for the top six positions. However, the UIUC FSAE car couldn’t be beaten at the hands of Dave Cox. Here are the lowest six times out of the 40 car field.

Place	Driver	Time (Sec)	Car Make	Car Model
1	Dave Cox	36.2	UIUC	Formula-SAE
2	Dan Reif	39.8	UIUC	Formula-SAE
3	Joe Tauke	41.1	Dodge	Neon-blue
4	JP Granger	41.9	Nissan	350Z
5	Matt Shepard	42.2	Lotus	Elise-orange
6	So Kikuya	42.5	BMW	M3 Black

Bradley University also took advantage of the opportunity to continually develop their FSAE car. Unfortunately, they had to retire early due to some mechanical issues. Team Coordinator Kris Buckert had this to say about the event. “Thank you for helping us out this past weekend. ...it was an excellent experience that the entire team is grateful for.” One of the primary intentions of CIS SAE was to give their universities a venue to test and develop their cars. A retired FSAE car from the University of Missouri-Rolla was also in attendance. The ability and willingness for UMR to



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relinquish their older vehicles to former students supports the FSAE program. Their foresight helps bring recognition to the FSAE program through the car's participation in driving events across the country. Thank you UMR.

Overall, CIS SAE considered the program a success. This is the second year for the precision driving event for the Central Illinois Section. Returning program sponsor eServ had a significant impact on the success of the program. eServ, a Perot Systems Company is a product engineering company that teams with manufacturing companies worldwide to provide engineering services from concept to production.



For more information regarding this event and future events, check out the CIS SAE web site. <http://www.saesections.org/cis/>

Interested in other driving events? The Lincoln Trail Region of PCA sponsors several autocrosses each year. To find out when they are, go to the LTR website at <http://ltr.pca.org/>.

Student Information



2005-2006 Formula SAE Review

The 2006 car, officially named "Inferno", was one of the strongest cars designed by the Formula SAE team at the University of Illinois at Urbana-Champaign. Throughout the competition, the team was extremely pleased with the performance of the car. The superb suspension, coupled with a stiff chassis, strong engine, and a bulletproof drivetrain allowed the car to meet the team's expectations.

The suspension was put to the test on the skid pad. The UIUC car placed an impressive 10th. The following day, the Illini drivers were put to the test on the autocross course, and finished an impressive 14th. Following the car's strong performance in all the events, the team was anxious to race the car in the grueling endurance event. This event was crucial; it would decide if the team would go home in the Top 10, or go home disappointed.

The endurance event started off with fantastic results; the U of I was leading going into the driver change. The driver change was going well until the engine restart. Despite the team's best efforts, the engine would not fire, and there was no restart. Inferno was disqualified from the endurance event. The silence in the paddock was deafening as everyone's heart fell to their stomachs. It wasn't until testing during extreme summer temperatures, that the problem could be recreated. Fortunately, the problem was identified as a faulty engine control module (a purchased component). This problem has been addressed and will not reoccur.





Program Dates

A Sneak Peak at 2006-2007

Following the team's belief that iterative innovation is the key to superior vehicle design, the team will make the evolution of Inferno possible by building upon lessons learned from its successes and failures. The success of Inferno in testing and competition leads the team to believe that with small improvements, the U of I team can be a Top 5 contender. Weight reduction will be important for this year since the car weighed in at 467 lbs. at the 2006 competition. The team has started engine performance tuning earlier than usual this year. Engine dyno testing has already started, and iterative intake and exhaust design will commence shortly. The Formula SAE team also hopes to make drivetrain efficiency improvements and increase the effectiveness of their anti-roll bars.

Inferno has proven to be a great foundation from which the U of I team can evolve for this year and beyond. It is this evolutionary design process that will produce winning results for the Racing Illini!

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Up-coming Events:

SAE Commercial Vehicle Congress, Oct. 31-Nov. 2, 2006, Chicago Area

The SAE Commercial Vehicle Engineering Congress and Exhibition is a global assembly of commercial vehicle engineering customers in one location. It successfully brings together, in one place, a global assembly of both on- and off-road customers, providing three days of solid, profitable interaction with engineers, supply managers and executives. This high-energy event enables attendees to access cutting edge technological information, engage in high-profile networking and enhance understanding concerning the issues and challenges facing the entire commercial vehicle industry.

As an SAE member, you can attend one event per year for FREE. There is a discount for registering before October 13.

event at-a-glance			
Monday October 30	Tuesday October 31	Wednesday November 1	Thursday November 2
SAE Technical Standards Committee Meetings (Monday – Thursday)	8:00 a.m. – 10:30 a.m. Technical Sessions	7:00 a.m. – 8:00 a.m. Bagels & Briefings: SAE Standards Update (Ballroom)	8:00 a.m. – 10:30 a.m. Technical Sessions
	10:30 a.m. – 10:45 a.m. Networking Break (Foyer)	8:00 a.m. – 10:00 a.m. Technical Sessions	10:30 a.m. – 11:00 a.m. Networking Break (Exhibit Hall)
	10:45 a.m. – 12:30 p.m. Panel (Ballroom): "Alternative Energy for the Future" and Technical Sessions	10:00 a.m. – 10:30 a.m. Networking Break (Exhibit Hall)	11:00 a.m. – 12:30 p.m. Panel (Theater): "Electronics Architecture" and Technical Sessions
	12:30 p.m. – 1:00 p.m. Lunch (Ballroom Foyer)	10:30 a.m. – 12:00 p.m. Panel (Theater): "Operator-Vehicle Interfaces" and Technical Sessions	12:30 p.m. – 1:30 p.m. Lunch (Exhibition Hall)
	1:00 p.m. – 3:00 p.m. Technical Sessions	12:00 p.m. – 12:30 p.m. Lunch (Exhibition Hall)	12:30 p.m. – 5:00 p.m. Committee Meetings
	3:00 p.m. – 3:30 p.m. Networking Break	12:30 p.m. – 1:30 p.m. Buckendale Lecture (Theater)	Exhibit Hours: Tuesday 3:00 p.m. – 8:00 p.m. Wednesday 10:00 a.m. – 5:00 p.m. Thursday 10:30 a.m. – 1:30 p.m.
	3:30 p.m. – 5:00 p.m. Panel (Theater): "Focus on India: Providing Engineering Solutions for the Commercial Vehicle Industry" and Technical Sessions	1:30 – 3:00 p.m. Technical Sessions	
	5:00 p.m. – 8:00 p.m. Welcome Reception (Exhibition Hall)	3:00 p.m. – 3:30 p.m. Networking Break (Exhibit Hall)	Registration Hours: Monday 10:00 a.m. – 5:00 p.m. Tuesday 7:00 a.m. – 5:30 p.m. Wednesday 7:00 a.m. – 5:30 p.m. Thursday 7:00 a.m. – 1:00 p.m.
	3:30 p.m. – 5:30 p.m. Panel (Ballroom): Global CEO Panel		
	5:30 p.m. – 9:00 p.m. Networking Reception and Banquet with Speaker: Carl B. Mack		

SAE 2006 Commercial Vehicle Engineering Congress and Exhibition

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FIRST Robotics Call for Mentors

FIRST (For Inspiration and Recognition of Science and Technology) conducts design competitions that demonstrate that engineering and science can be as interesting, captivating, and entertaining as a sporting event. The competition requires a six-week project for which industries and universities team with local high schools (Richwood, Manual, Peoria Heights, etc.) to design, construct, and control a remotely operated vehicle for a playoff whose objective changes each year.

Each team starts off with the same standard kit of parts and uses its creativity to design and build a vehicle capable of performing a demanding task. The FIRST project is more than the task of designing and building a robot from a standard set of raw materials. It involves such diverse aspects as financing the project, coordinating logistics, arranging press coverage for your team, and documenting the impact your team has made in your community.

Volunteers serve in a variety of technical and non-technical capacities and the time commitment varies with role. For more information please contact: FIRSTRobotics@cat.com

Caterpillar FIRST Coordinator: Deborah Lewellyn

Argos Team Leader: Scott Thompson

Robot Casserole Team Leader: Matthew Leustek





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eServ ePrix—September 29, 2006

The eServ ePrix is an annual fundraising event for Junior Achievement. You can visit www.eserv.biz, and click on the ePrix info link for sponsorship and entry forms.

2006 eServ ePrix

It's that time again...
START your Engines and
RACE for:



Friday, September 29
at "The eServ Track"
8200 N. Allen Road
Peoria, IL 61615

Platinum, Gold & Silver
Sponsorships Available
or join us by purchasing
a Single Driver Slot.
See back for costs & details.



Please Contact:
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