



Milwaukee Section Newsletter

April 2008

www.saemilwaukee.org

“Design and Development of Heavy Duty Diesel Engines to Meet Emission Standards”

at Cummins Filtration, Stoughton, WI

Tour plus Presentation by

Jim Clerc – Cummins Engine

Thursday, May1, 2008



HPCR



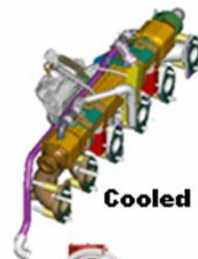
Quantum Electronics



Advanced Combustion



Direct Flow Air Filter



Cooled EGR



VGT



Crankcase Filter



Cummins Particulate Filter



Rideshare or be one of the first to register for the complementary coach to the Cummins Event. The coach will leave State Fair Park, Park and Ride at 3:30 p.m. or Goerke's Corners at 3:45 p.m. Contact Jim Ryan if you are interested in participating. First come, first served – limited seating available.

About the Cummins Emissions Tour and Presentation Event –

This presentation covers the design and development of Heavy-Duty (HD) Diesel engines that meet the 2007 HD US EPA emission standards. These standards are the most stringent standards in the world for on-highway HD diesel engines, and have driven the application of new technologies, which includes: particulate after-treatment, crankcase ventilation systems, and second generation cooled EGR.

The presentation emphasizes the importance of designing the product to meet the tough expectations of the trucking industry - for lowest total cost of ownership, lowest operating costs, high uptime, ease of maintenance, high performance and durability. A key objective was that these new low emission engines should meet or exceed the performance, reliability and fuel economy standards set by the products they replace. Additionally, these engines were designed to be fully compatible and emissions compliant with bio-diesel B20 blends that meet the ASTM and EMA fuel standards.

To meet these exacting requirements, extensive use was made of Analysis-Led Design, which allows components, sub-systems, and the entire engine, after-treatment and vehicle system to be modeled before designs are taken to prototype hardware. This enables a level of system and sub-system optimization not previously available.

The presentation will include results from the development of Cummins 2007 HD engine and after-treatment systems, including:

- * Engine and After-treatment Integration for Optimum Performance
- * NOx control using Cooled EGR
- * Crankcase Gas Filtration for HD Engines
- * Application of Analysis-Led Design Tools

Tour Information

The engineering development, acoustic laboratories, dynamometer and display vehicles will be shown between 4:30 and 5:45. The last tour will start no later than 5:15.

Jim Clerc Biography: Jim is a 1980 BSME graduate of Michigan Tech University and completed his MSME degree at Michigan Tech University in 1982, studying with Dr. John Johnson. Jim has been involved in SAE for over 25 years, including publishing two previous SAE papers and one SAE book. Jim is a previous winner of the Arch T. Colwell award through SAE for a published paper.

Jim began his career at Chevron Research, working in jet fuel and diesel fuel performance. Since joining Cummins in 1986, Jim has been an active participant and leader of the development and production introduction of after-treatment systems across all engine products. He is recognized by key suppliers and customers as a technical expert in after-treatment technologies.

He has also held key roles in the quality and reliability areas and is a very strong advocate of the Six Sigma tools and methodologies.

Currently, he is Executive Engineer with Cummins Emission Solutions, leading the overall technical efforts for the aftertreatment for the US 2010 and Euro 6 HD and MR automotive applications, including the recently announced SCR technology.

Jim resides in Columbus, Indiana with his wife, Marilyn. They have three sons attending college, ages 23, 21, and 19. In addition to managing college funding, Jim spends his spare time in Community Involvement activities in Columbus.

- - - EVENT AGENDA - - -

Tours	4:30 - 5:45 p.m.
	<i>(last tour starts at 5:15)</i>
Registration:	5:00 – 6:00 p.m.
Dinner:	6:00 – 7:00 p.m.
Program:	7:00 – 8:00 p.m.

- - - DINNER - - -

MENU:

DINNER PRICES:

SAE Members / spouses:	\$20.00
Retirees:	\$15.00
Guests / Non-members:	\$25.00
Students w/ID	\$10.00

- - - MENU - - -

Broux House Buffet: One of Madison Area's Best Restaurants

Lasagna, Vegetable Lasagna, rolls, salad, dessert & complementary milk/water/coffee or tea. The Broux House is just a few blocks north of the Cummins Filtration facility, off Hwy 51

Broux House
800 Nygaard St.
Stoughton, WI 53589
608-877-7800



Only pre-payments made with a **charge card** can be completed online via <http://milwaukee.sae.org>

Retirees, students and members without web access may register by phone on the SAE Registration Coordinator – Jim Ryan (262) 636-1634. Note new registration number!

[Registration deadline: Monday, April 28, 12:00 p.m.](#)

Directions to Cummins Filtration –

Directions: Cummins Filtration 1801 US Highway 51 And 138, Stoughton, WI

From Madison: Take US-14 E. 8.6 miles, Turn LEFT onto WI-138. 6.0 miles, Turn RIGHT onto US-51 S / WI-138 S. 0.3 miles

From Chicago: I-90 W / I-94 W / KENNEDY EXPY W. 7.5 miles, take I-90 W via EXIT 43B toward O'HARE / ROCKFORD (Portions toll) (Crossing into WISCONSIN) Merge onto US-51 N via EXIT 156 toward STOUGHTON. 8.4 miles, End at 1801 Us Highway 51 And 138

From Milwaukee: I-94 W toward MADISON. 70.3 miles, Take the WI-30 W exit- EXIT 240- on the LEFT toward MADISON, Merge onto I-39 S / I-90 E via EXIT 4A on the LEFT toward JANESVILLE. 3.7 miles, Merge onto US-12 W / US-18 W / W BELTLINE HWY via EXIT 142A toward MADISON. 1.4 miles, Take the US-51 S exit- EXIT 266- toward MC FARLAND. 0.2 miles, Turn LEFT onto US-51 S / STOUGHTON RD. Continue to follow US-51 S. 10.7 miles

From Oshkosh: US-151 S toward WAUPUN / MADISON. 51.0 miles, Merge onto I-39 S / I-90 E via EXIT 97A toward CHICAGO/ MILWAUKEE. 6.3 miles, Merge onto US-12 W / US-18 W / W BELTLINE HWY via EXIT 142A toward MADISON. 1.4 miles, Take the US-51 S exit- EXIT 266- toward MC FARLAND. 0.2 miles, Turn LEFT onto US-51 S / STOUGHTON RD. Continue to follow US-51 S. 10.7 miles

Cummins Filtration is the leading worldwide designer and manufacturer of filtration products and exhaust systems for heavy-duty diesel powered equipment. Our broad product lines cover a wide variety of applications and markets, including:

Heavy-, medium- and light-duty trucks

- Industrial equipment for construction, mining, agriculture and marine applications
- Power generation

Started in 1958, Cummins Filtration today is a multinational company with diverse channel distribution, including:

- Hundreds of global Original Equipment Manufacturers (OEMs)
- Over 23,000 dealer/distributor outlets
- End users
- Global and Diverse

Our reach and scope are truly global. With our corporate headquarters located in Nashville, Tennessee, Cummins Filtration employs over 6,000 people worldwide. We operate 23 production plants in nine countries, 16 distribution centers on six continents and three joint ventures.

A tour of the acoustic laboratories, dynamometer lab, engineering and development areas will be available. However, the last tour will start at 5:15.

Future SAE-Milwaukee Programs:

<i>May 14th</i>	<i>Advanced Engine Development Corporation at Corse Super Bike, featuring Diesel</i>
<i>June 20-22</i>	<i>SAE – Milwaukee at the June Sprints, Road America</i>
<i>July TBD</i>	<i>SAE Governing Board and Executive Review</i>
<i>July 28 – Aug 1</i>	<i>SAE International Gathering at EAA, Oshkosh, WI Presentation by Mike VanStaagen www.the-jet.com</i>
<i>September 9-11</i>	<i>Small Engine Technology Conference - Milwaukee</i>

Section News:

UW- Madison First Place Clean Snowmobile Challenge – Milwaukee Section Shows Strong

(from SAE National and Michigan Tech University)

The zero emissions division was won by the **University of Wisconsin at Madison**. UW Madison team leader Nick Rakovec credited excellent advising and teamwork for the battery-powered sled's success. It uses a Delphi electric motor (once used by General Motors in its EV1 electric car) powered by 84 28-volt lithium-ion batteries and is capable of running up to 20 miles on a single charge. "We can charge these batteries in half an hour," Rakovec said. "If the NSF takes it to Greenland, they'll be able to recharge it quickly."

The team has earned a chance to send members and possibly its winning sled to the National Science Foundation's Summit Station in Greenland. Arctic researchers use electric vehicles when traveling across the ice, since any emissions can contaminate samples taken from ice and the air. "It's an incredible machine," said Tracy Dahl of Polar Field Services, representing NSF. "The thing rips."

UW Madison's zero emissions sled also nabbed the Society of Automotive Engineers Award for Best Design in its class, first place for the Kreider and Associates Award for Best Paper, the DENSO Award for Best Ride, the Veco Polar Resource Range Event Award, and the Caterpillar Corporation Innovation Award.

The **University of Wisconsin-Platteville** received the American Council of Snowmobile Associations Award for Third Place in the internal combustion division, as well as the Polaris Industries Award for Best Handling and the Aristo Award for most improved snowmobile team.

Michigan Technological University earned the ThermoAnalytics Award for Fourth Place in the internal combustion division, plus the Land and Sea Award for Best Performance.

UW Madison's internal combustion sled took the SAE Milwaukee Chapter Award for Fifth Place, plus the BlueRibbon Coalition Award for Most Practical Solution balancing cost, noise and emissions; the Society of Automotive Engineers Award for Best Design in the internal combustion class, and third place in the best paper competition.

Marquette University SAE Formula Team, First Runner Up – Pat Schoepel

Pat Schoepel was invited to attend the 6th annual Marquette University Business Plan competition on Monday April 14th. The MU SAE Formula team was presenting their vehicle design as a business plan in the competition. Out of 35 teams presenting business plans, across all MU schools and alumni, the MU SAE racing team finished as a runner up to the finalist.

Very impressive for the SAE student engineering team to compete against business students and alumni, and finish 2nd. It's a great example of an SAE student section team taking their project and applying the business aspect to all of their hard engineering efforts. Contact Daniel Lentsch, advisor to the team, to provide additional information, or check out the article in the Milwaukee Journal: "Local entrepreneurs to get solid advice, Oracle executive will speak at business awards dinner" By KATHLEEN GALLAGHER kgallagher@journalsentinel.com, Posted: April 11, 2008

Results from Collegiate Grant Awards and Technical Presentations at MSOE Student Night

Marquette University and Michigan Tech tie for first place overall. Marquette University placed first in the technical presentation, and Michigan Tech placed first in the written grant. \$5000 was awarded through the Milwaukee Section Student Grant Program.

Awards:

Marquette University \$1250, Michigan Tech \$1250, UW-Milwaukee \$1050, UW-Madison \$750, MSOE \$700

Milwaukee Section Candidates and Governing Board Announced:

The slate of officers for the 2008-2009 year includes the return of Bernard Krauska as Chairman, Wayne Richter as secretary. Jim Ryan, who has served as Event Registration and Reception Coordinator, has accepted the nomination to act as treasurer. Josh Rayeske has accepted the nomination for Vice Chairman.

Bernard Krauska has been serving on the Governing Board for seven years in several roles including secretary, Lecture Series Chairman, and Vice Chairman. Bernard is an Engineering Supervisor at DRS Power and Control Technologies in Milwaukee.

Josh Rayeske has been active in many roles for the Governing Board, including Collegiate Event projects, Event Program Manager for the Super Steel Meeting and has been a key contributor to many other programs over the past three years. Josh is employed at Strattec Security Systems, and is currently pursuing his Masters Degree at Marquette University. Josh was a student leader and alumnus at UW-Milwaukee. Josh is also the collegiate liaison to Marquette University.

Wayne Richter has been serving the Milwaukee Section Governing Board for the past 7 years as a member, treasurer, Event Program Manager, and currently serves as Secretary. He has been a strong proponent and supporter of collegiate chapters competing in the Clean Snowmobile Challenge and other events, which benefit from exhaust catalysts. Wayne works for Heraeus, Chemicals Division as Market Development Manager.

Jim Ryan has provided leadership roles for event coordination, registration and web communication over the past year. Jim has been instrumental in many monthly meeting events by helping Program Managers pull their events together. Jim was sponsored by the Milwaukee Section to attend the Section Officers Leadership School while a student at UW-Milwaukee. Jim is the collegiate liaison to UW-Milwaukee. Jim is an Applications Engineer, Engine Products Group for Modine Manufacturing, following the contributions of Joe Sagat and Pat Schoepel.

Thank you for your service!

Pat Schoepel will be stepping down from the board after serving as treasurer for two years. Thanks to Pat for his professionalism and stewardship of our section resources. His leadership, planning and organization have helped the governing board and program managers understand section costs so that we break even, and maximize our contributions to our Collegiate Chapters.

Cara Piggott will be stepping down from her role as webmaster. Cara has been consistent communicator and has enthusiastically embraced her responsibilities. Current career demands and her passion for racing have helped her make a good decision to focus on other priorities. We wish Cara the best – see you at the races!

Thank you to our Governing Board contributors. Chris Nelson has been a dependable contributor for programs, members communication, plant representation, serving our members in western Wisconsin and representing the Milwaukee Section at national events. Dale Wiza continues to be a great steward of the organization and provides another network dimension that draws membership involvement, program topics and hosting governing board meetings. Joe Sagat continues to provide encouragement to the governing board and reminders for what is important. Pat Murray has brought his students and education perspective to the governing board.

Milwaukee Section 2007-2008 Governing Board

CHAIRMAN:

Bernard Krauska
DRS Technologies
email: saemilwaukee@gmail.com
Phone: (262) 442-7754

SECRETARY:

Wayne Richter
Heraeus GmbH – Exhaust Catalysts
email: richterway@sbcglobal.net
Phone: (262).377.8145

TREASURER:

Pat Schoepel
Modine Manufacturing Company
email: P.J.Schoepel@na.modine.com

PAST CHAIRMAN:

Joe Sagat
Modine Manufacturing Company
email: j.g.saga@na.modine.com
Work: (262) 636-1362

WEBMASTER:

Cara Piggott
Cummins Filtration
email: cara.r.piggott@cummins.com
Work: (608) 877-3918

MEMBERSHIP/ COMPANY REPRESENTATIVE:

Chris Nelson
National Instruments
email: chris.nelson@ni.com
Work: (608) 852-7328

A WORLD IN MOTION (AWIM): Education

Patrick Murray
Muskego High School
email: pmurray@mnsd.k12.wi.us
Work: (414)765-9966 x246

PROGRAM DEVELOPMENT:

Josh Rayeske
Strattec Security Corporation
email: jrayeske@strattec.com

REGISTRATION COORDINATOR

Jim Ryan
Modine Manufacturing Company
email: J.W.Ryan@na.modine.com

CAREER DEVELOPMENT

Dale Wiza
Professional Engineering Placements, Inc.
email: dale@engineeringplacements.com
Work: 414-807-9663

COLLEGIATE ADVISORS:

Glenn Bower, PhD.
UW-Madison
email: grbower@facstaff.wisc.edu
Work: (608) 263-7252
Chris Damm, PhD.
Milwaukee School of Engineering
email: damm@msoe.edu
Work: (414) 277-7543
Jim Rice, PhD.
Marquette University
email: james.rice@marquette.edu
work: (414) 288-5405

Dear Members and Section Friends,

How can you help?

Our section leadership comes from different directions, viewpoints, professional experiences and industries. We all have something in common – we have had a meaningful experience through our SAE membership. Each of us can tell a story of why they are on the Governing Board, what they want to get from the experience, what they want to contribute to their industry and what they want for the Milwaukee Section to accomplish.

Section leadership is developed through participation in our monthly programs, tours, lectures, social events, technical meetings and national events. If your company has a “Servant Leadership”, “Engaged Leadership” or community service initiative – please consider your Milwaukee Section as a destination for your contributions. If you are looking for a non-traditional growth experience or looking to build your network, please join us. We will continue to build upon a theme – multiple leadership opportunities through teamwork.

This coming year, we need to figure out more ways to feed our collegiate advisors. Dr. Jim Rice at Marquette, Dr. Chris Damm at MSOE, Dr. Glenn Bower at UW-Madison, Dr. John Reisel at UW-Milwaukee and Dr. Jason Blough at Michigan Tech are leading our future engineers. We hope you can connect with these advisors to find ways to support their work and help mentor their students. We know from multiple sources – SAE students that compete in the Collegiate Design Series are the best prepared to be successful, and demonstrate their gratitude by sharing their leadership and gifts later in their careers.

We wish you well in your careers and challenges in your industries. With all of the unintended consequences of increased regulation, litigation, financial market influence and increased global competition, staying ahead of the game is as difficult as it has been in a while. Look to your Milwaukee Section to be connected. We are stronger when we work together.

Regards,

Bernard Krauska
Chairman – Milwaukee Section.
saemilwaukee@gmail.com

Meeting Sponsorship



www.evschevrolet.com



For more information on becoming a sponsor, please contact any Section Board member.

Keep current with us on these SAE web sites:

www.saemilwaukee.org for the Milwaukee Section or
the national site at www.sae.org

For more information on A *World In Motion* call: 724-772-8514, and ask for Darlene Geweth
email: awim@sae.org internet: www.sae.org/foundation/awim



Milwaukee Section Newsletter

MAY 2008

www.saemilwaukee.org

“Diesel Motorcycle by Advanced Engine Development, Inc”

Nick Hirsch and Karl Nilson
Wednesday, May14, 2008

at Corse Superbike - Saukville, WI
plus Election of Milwaukee Section Officers



Presentation Topics

- * “Dieselizing” a 107 cu. in. motorcycle engine
- * Integrating the Garrett VNT Turbocharger
- * Computer control architecture and challenges
- * Motorcycle application development

About Advanced Engine Development and the Diesel S&S based Harley-Davidson Presentation:

AED Background: AED Corp. is an internal combustion engine research, design, and development corporation. AED has performed engine research, design and development projects for Briggs & Stratton Corp., Teledyne-Wisconsin, WIS-CON Total Power, Ningguo Machinery Industry Co. China, the United States Navy Sea Systems Command, United States Naval Air Systems Command, and the United States Army Tank and Automotive Command.

The principal engineer and investigator is **N.R. Hirsch, President of AED**. Mr. Hirsch is an engineer with over forty years of experience in the internal combustion engine industry. Prior to founding AED, Mr. Hirsch was a Project Engineer for Mercury Marine, the Chief Engineer for Harley-Davidson Motor Company, and the Vice-President of Engineering for Teledyne-Wisconsin Motors. Mr. Hirsch is a member of the Society of Automotive Engineers. He has also written and published a number of technical papers and reports relating to internal combustion engines.

He received his Bachelor of Science Degree in Mechanical Engineering at the University of Wisconsin-Madison. He accomplished post-graduate work at UW-Milwaukee, Marquette University, the National Defense University (DC) and the Naval War College (Newport, RI). He is a retired Colonel of the U.S. Marine Corps Reserve. Currently is a member of the Board of Directors for the Center for Teaching Entrepreneurship, Milwaukee.

Karl Nilson, Oceans Trading LLC, New Berlin, WI – Karl found his international trading/consulting company in 1981. His engineering background includes 20+ years with Harley-Davidson and was Engineering Project Manager for Advanced Products. Karl holds the distinction of being Harley's first North American field service representative. His motorcycle background and enthusiasm dates back to include British bikes, of course Harley-Davidsons, BMWs and now Italian motorcycle "jewelry" such as Ducati and MV Agusta. As part of Karl's engineering consulting, he has represented W.C. Heraeus, Hanau Germany – engine exhaust catalysts, for 15+ years and knows engines and their chemistry inside and out!

Corse Superbikes – We thank our host for this evening, Corse Superbike, Saukville, Wisconsin – Wisconsin's largest Ducati motorcycle dealer. In addition to Ducati, see them for: MV Agusta, KTM (Austria), Aprillia, Suzuki and Schwinn scooters. You will enjoy seeing the latest in a variety of motorcycle, ATV and accessory products.

--- EVENT AGENDA ---

Registration:	6:00 – 6:30 p.m.
Dinner:	6:30 – 7:30 p.m.
Program:	7:30 – 8:30 p.m.

MENU:

DINNER PRICES:

SAE Members / spouses:	\$15.00
Retirees:	\$15.00
Guests / Non-members:	\$20.00
Students w/ID	\$10.00

--- DINNER ---

--- MENU ---

Catering by Mama-Mia's Port Washington

Italian sausage sandwiches, Italian dessert and other salads, garnish, complementary beverages.

Only pre-payments made with a **charge card** can be completed online via <http://milwaukee.sae.org>
Retirees, students and members without web access may register by phone on the SAE Registration
Coordinator – Jim Ryan (262) 636-1634. Note new registration number! Due to the popularity of this
event and limited seating, registration is required. Walk-in's may be limited to standing room only.
Registration deadline: Monday, May12, 12:00 p.m.

Directions to Corse Superbike –

Directions Take I-43 to exit 96 (Hwy 33). Go west on Hwy 33 for 1 block to Foster Rd. Turn left onto Foster Rd (by Dairy Queen) and then left again at Milan Drive.

Corse Superbikes
700 East Milan Drive Saukville WI 53080
Phone: (262) 284-2725 Fax: (262) 284-6789

