



Milwaukee Section Newsletter

www.saemilwaukee.org

“Spacecraft Propulsion Systems”

Orbitec – Orbital Technologies Corporation

At Waukesha County Technical College, Pewaukee, WI

Thursday October 25th, 2007

6:00 – 8:45 p.m.

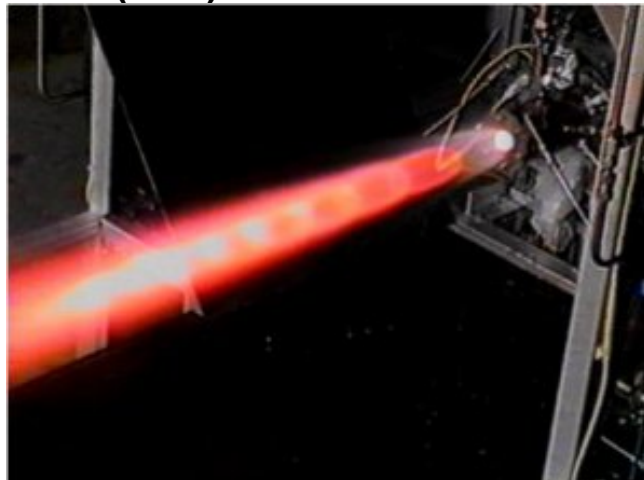
Headquartered in Madison, ORBITEC is Wisconsin’s aerospace research and product development leader, proving strong in the use of the Small Business Innovative Research Program as a catalyst for technology and product development.

Orbitec will be presenting several programs in the areas of spacecraft propulsion systems, materials and payload development:

- LOX, liquid fuel, and gaseous propellant system development,
- Vortex Injected Hybrid and Combustion Ramjet Rocket Engine
- Metallized Cryogenic Hybrid Rocket Engines
- High Performance Aluminum Castings
- Conceptual Rocket Cycle Analysis Programs
- Altitude-Compensating Engine for Launch Vehicle Applications.
- Stoichiometric Combustion Rocket Engine (SCORE)
- Microwave Electrothermal Thruster (MET)

Presentations will be made by:

- Chris St. Clair, BS-ME
- Scott Munson, MS-ME
- Chip Sauer, MS-ME



--- EVENT AGENDA ---

Registration: 6:00pm
Dinner: 6:30pm
Program: 7:15 - 8:45pm

--- DINNER ---

MENU:
DINNER PRICES:
SAE Members / spouses: \$22.00
Retirees: \$17.00
Guests / Non-members: \$27.00
Students w/ID \$10.00

--- MENU ---

MENU: *(select one)*

- **Stuffed Pork Chops** (luscious seasoned Pork Chop overflowing with herb stuffing)
- **Medallions of Beef Bordelaise** (Tender Beef grilled and served in light Bordelaise Sauce)
- **Baked Cod Florentine** (filet served with creamy spinach sauce)

Included: fresh spinach salad, potato, vegetable, dessert assortment, coffee, tea, milk

Registration:

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, October 21, 10pm



Orbitec Speakers:

Chris St. Clair

Education: BS-Engineering Mechanics, UW-Madison

Mr. St.Clair has thirteen years of experience in the field of rocket propulsion. He has led a broad variety of projects at ORBITEC, including a solid oxygen hybrid rocket engine, various liquid rocket engine designs, and the Dual-Mode Water Rocket spacecraft propulsion system.

Mr. St.Clair is a member of the AIAA Nuclear and Future Flight Propulsion Technical Committee, and he serves as the Treasurer of the AIAA Wisconsin Section.

Scott Munson

Mr. Munson holds a Master's Degree in Mechanical Engineering, University of Wisconsin – Madison,. Mr. Munson earned his Bachelor's Degree in Aerospace Engineering and Mechanics from the University of Minnesota.

Mr. Scott Munson, Propulsion Engineer, has been involved with the development and testing of several vortex combustion technologies since joining ORBITEC in 2004. He has served as the development engineer for large-scale rocket engine development activities.

Additionally, he participates directly in the installation, instrumentation and checkout of test hardware and facility operations. He has expertise in mechanical design, performance engineering and system modeling. Mr. Munson has worked on conceptual rocket cycle analysis programs, tethered satellite simulators and anomaly investigations.

Honors, Awards and Achievements: Chair – Wisconsin Section of AIAA
 Associate Member – AIAA Space Colonization Technical Committee

Chip Sauer

Mr. Sauer received a B.S. in Engineering Mechanics and Astronautics from the University of Wisconsin-Madison, and continued his studies in analytical dynamics and finite element analysis techniques to earn a M.S. in Engineering Mechanics.

Mr. Chip Sauer has contributed to all phases of the development of the ORBITEC Vortex Combustion Chamber technologies. Mr. Sauer is currently working to advance the maturity of the liquid-liquid cold-wall chamber technologies as the Deputy Principal Investigator for both the Forward-1 and Universal Small Launch Vehicle (USLV) projects. In addition, Mr. Sauer is the Principal Investigator for the ORBITEC High Performance Aluminum Castings project for the U.S. Air Force.

As a graduate student, Mr. Sauer served as a teaching assistant for the Senior Capstone Design Course in the Department of Engineering Physics and had the opportunity to mentor both the aircraft and launch vehicle design teams. Mr. Sauer is an AIAA senior member, is a member of the AIAA Liquid Propulsion Technical Committee, and is a former Wisconsin AIAA Young Member and Section Chair.

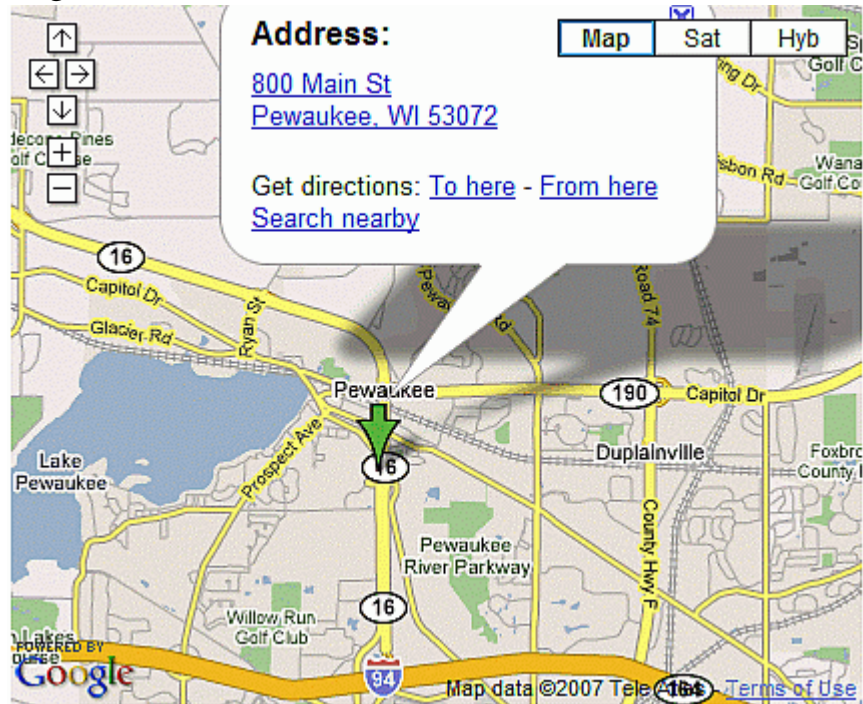


Orbital Technologies Corporation 1212 Fourier Drive Madison, WI 53717 (608) 827-5000 (608) 827-5050 FAX

Map to WCTC – Pewaukee, WI

Waukesha County Technical College
RTA Center
800 W Main Street
Pewaukee, WI 53072

From the intersection of I-94 and County Rd T, take County Rd T north (0.4 miles), at the junction with County Rd JJ, head west (left) into the WCTC campus. Park to the left of the main entrance, near poles 7, 8, or 9 which are in front of the main Richard T. Anderson (RTA) Education Center building where the meeting is being held.



Going Faster: Rocket Propulsion in the Milwaukee Section



Richard (Dick) A. Keller III is a familiar face in the Milwaukee Section. Two years ago, Dick made a presentation “Rockets, Ramps, Records and Rehabilitation Engineering” at Bruno Independent Living Aids. He outlined some of extraordinary experiences in the of the “Blue Flame”, “Honda Hawk”, “Pollution Packer”, and “X1” land speed record holding, rocket powered vehicles.

He also presented early pursuits with hot rods and more recent work with product developments at Bruno, aimed at the mobility impaired.

A young Mr. Keller (whose initials are RAK) was influenced by Fritz von Opel’s rocket car “RAK2”. RAK III imagined the coincidence to be Destiny pointing a finger at him to make the next progression.

Dick is working toward retirement -supposedly. Rumor has it, he may be working on his next land speed record vehicle – and he may be looking for collaborators. Some people never slow down.

Check out www.saemilwaukee.org for more details of his presentation.

Reaching Higher: Atmospheric Travel in Wisconsin

"As a junior and senior in college at MSOE, I interned with the Wisconsin Space Grant Consortium (WSGC) on the initial High Altitude Balloon student launch team. The High Altitude Balloon program uses a large balloon to carry a scientific payload to heights of 100,000 feet, in order to conduct experiments at near-space conditions. The goal of the launch team was to design a balloon-carried payload which could be tracked and therefore retrieved upon returning from heights of 100,000+ feet.

Being part of the founding launch and tracking team for the program was a very educational experience. As the founding team, we set the guidelines and premiere design concepts for Wisconsin's first High Altitude Balloon program. As a team, we were responsible for designing, building and testing a GPS tracking system for our High Altitude Balloon, from conception to completion. This internship provided many growth opportunities which were firsts for me, including working with a self-motivated and led team, setting and accomplishing goals, documenting all work completed, developing procedures, and organizing a budget. A unique side benefit was acquiring a Technician Ham Radio operating license with my very own call sign, which was needed in tracking both the High Altitude Balloon and chase vehicle. To learn more about the WSGC and the team I participated on, check out our links at www.saemilwaukee.org.

Cara Piggott

'03-05 High Altitude Balloon Launch Team - Team Elijah

For more information on the Wisconsin Space Grant Consortium, check out their web site at <http://www.uwgb.edu/WSGC/>.



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Dear Members and Section Friends,

Thanks to Eric and Alicia VonSchedorn for opening their doors to Random Lake Corvette to the Milwaukee Section September meeting “Corvette – Yesterday, Today, Tomorrow”. Thanks also to Rick “Corvette” Conti for all of his energy and enthusiasm in preparing for this event. Jerry Burton gave a very good visual presentation and provided unique commentary on some of the history and styling of Corvette. Jerry in his role at Corvette Quarterly has extraordinary access to archives and people that influence this great American sports car. Watch for more from Jerry.

Mark Debattista and Chris Nelson are the program managers for the October meeting “Spacecraft Propulsion Systems” by Orbitec. Mark has been the Vice Chair – Programs for the section during the past 6+ years. He has developed many skills in putting together programs, and comfortable presence in front of a microphone and stage. A demonstration of his talents was shown at the Rolls-Royce meeting this past spring. Mark prepared the presenters and built a well-received presentation that had not been previously shown in PowerPoint.

Chris Nelson is the co-manager of this event and is assisting with programs for the first time. Chris is the District Sales Manager for National Instruments and serves the Governing Board as Plant Representative Vice Chair. Please recognize Mark and Chris for their efforts when you meet them on October 25th.

Dale Wiza, Career Development Vice-Chair, will be at WCTC earlier in the day. He will be conducting a career planning session with students and other professionals from the college. Please contact Dale for more information regarding meeting place and times. All members and students are welcome.

Our meeting on November 7th, will feature a tour and presentation by Super Steel. Super Steel is a contract development, fabricator, and finished product assembler. They will be highlighting their capabilities in off highway and "on rail". This meeting will offer a “Railroad” theme, and will precede the National Model Railroad Association “Trainfest”. Josh Rayeske is leading this program. Expect to meet several UW-Milwaukee Alumni at this event. More details for the November 7th meeting at Super Steel will be distributed shortly.

Regards,

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

Meeting Sponsorship



www.escchevrolet.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