



IEEE

MADISON SECTION NEWSLETTER

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MARCH 2009

Digital Video Carrier Methods for HD & SD Content

- Date/Time:** Thursday, March 19, 2009, 11:45 AM - 1:00 PM
Speaker: Robert J. Schaeffer, President-Senior Technologist, Technology Planners, Fond du Lac, WI
Location: Rocky Rococo's Pizza, 7952 Tree Lane (Madison Beltline Hwy. at Mineral Pt. Rd.), 608.829.1444
Menu: Pizza buffet, salad and soft drinks (cost \$10.00, free for UW-Madison student members)
RSVP: by March 16th to David Marca via e-mail (dmarca@openprocess.com) or call 617.645.1358



Non-member guests are always welcome!

This talk will cover the various delivery technologies that are in common use to provide digital video: Over the air DTV; telephone based copper technologies of DSL, VDSL, and DSL2+; Fiber to the home PON concepts; and the CATV/HFC coaxial delivery model. The above technologies will be described in a briefing overview format. The central take away will be an appreciation of how varied technology carriers distribute digital video content.

Robert founded Technology Planners, an engineering and consulting firm, serving as President and Senior Technologist, in 1996. He is the chief consultant for optical, digital, and RF systems. He also heads the design team, researching and applying new technologies. Technology Planners focuses on providing guidance and assistance to owners and operators of broadband networks.

Robert has spent the past 35 years in the communications industry. For 23 years he served as Vice President of Engineering at Star Cablevision Group of Fond du Lac, Wisconsin. While there, he designed, built, and managed 400 cable television systems serving communities in seven states. Internationally Robert has worked in New Zealand, Mexico and the U.K.

Robert is a lifetime member of the Society of Cable Telecommunications Engineers (SCTE). He was a member of the technical advisory board at Cable Labs. He is a member of the Northeast Wisconsin section of IEEE, and has worked closely with many manufacturers. Former Wisconsin Governor, Tommy Thompson, appointed Robert, with confirmation by the State Senate, to sit on the board of directors for the Wisconsin Advanced Telecommunications Foundation (WATF) from 1995 to 2001.

A New, Efficient, Low-Emissions, Light-Weight, and Low-Cost Diesel Engine

- Date/Time:** Thursday, April 9, 2009, 11:45 AM - 1:00 PM (NOTE: second Thursday of the month rather than our normal third Thursday)
Speaker: James Lemke, Ph.D., CTO, Achates Power, Inc., San Diego, CA
Location: Rocky Rococo's Pizza, 7952 Tree Lane (Madison Beltline Hwy. at Mineral Pt. Rd.), 608.829.1444
Menu: Pizza buffet, salad and soft drinks (cost \$10.00, free for UW-Madison student members)
RSVP: by April 6th to David Marca via e-mail (dmarca@openprocess.com) or call 617.645.1358

Non-member guests are always welcome!

The 2% annual worldwide growth in energy usage projected by the EIA will be unachievable in the very near future from any mix of new and current energy sources. This will put increasing pressure on developing high-efficiency engines for transportation and other applications.

The development is privately funded and is being done in a state-of-the-art facility with an engineering and scientific staff of 47. A Technical Advisory Board of engine experts meets regularly; it is comprised of three members of the NAE and four Fellows of the SAE. Extensive use is made of FEA, CFD, KIVA-3, and a cluster computer. The company has developed its own proprietary fuel injection systems aided by laser doppler anemometry instrumentation. All parts except crankshafts are made in house with 3 axis, 4 axis, and 5 axis numerical mills and NC lathes.

The principles behind the basic engine and status of the development will be described.



Upcoming 2009 Short Courses for Engineers and Other Technical Professionals

- **Effectively Managing Technical Teams**
March 24–26, 2009 in Madison, WI
- **DC Power System Design for Telecommunications**
April 1–3, 2009 in Orlando, FL
- **Modern Wireless Data Communications**
April 20–22, 2009 in Madison, WI
- **The Engineer in Transition to Management**
June 1–3, 2009 in Madison, WI
- **Introduction to Right-of-Way for Utility Technicians and Managers**
Jun 24–25, 2009 in Madison, WI

For further information...

Web: epd.engr.wisc.edu or **E-mail:** danbeck@engr.wisc.edu
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James Lemke is a member of the National Academy of Engineering, Fellow of the IEEE, and Fellow of the AAAS. He has been awarded the IEEE Magnetic Society Reynold B. Johnson Storage Award and the Revelle Medal from UCSD. He has been designated Distinguished Lecturer by the IEEE Magnetics Society and was formerly a Fellow of the Eastman Kodak Research Laboratories. He has been awarded 80 U.S. patents and numerous foreign patents.

Dr. Lemke has a Ph.D. in Theoretical Physics from UCSB, an M.S. in Physics from Northwestern University where he was a Woodrow Wilson Fellow, and a B.S. in Physics from IIT. He is currently an Adjunct Professor in ECE at University of California San Diego.

His professional career has been primarily in the field of applied science and engineering with an emphasis on information theory, magnetic materials, information storage devices, and internal combustion engines.

He founded Spin Physics, Inc. (SPI) in 1968 and ran it as CEO and CTO for approximately 15 years. The company employed a workforce of 650 and made magnetic recording transducers employing unique magnetic materials developed and patented by the company. At one time 50% of the broadcast hours on television worldwide were recorded on SPI magnetic heads, and 90% of the recorders at the National Security Agency used SPI heads. Dr. Lemke sold the company to Eastman Kodak and became a Fellow of the Eastman Kodak Research Laboratories. Subsequently, he has founded and sold several other companies that developed high-density information storage devices employing unconventional materials. He has licensed his patents to IBM, RCA, Seagate, 3M, and many others.

His current interests are in the field of efficient internal combustion engines. He founded Achatas Power, Inc. to develop a uniquely lightweight, environmentally clean compression-ignition engine based on 10 years of his research in this field. Achatas Power has a scientific/engineering staff of 75 in a state-of-the-art laboratory in San Diego.

He is a 7,000 hour pilot with multi-engine and instrument ratings.

New IEEE Madison Section Senior Members

Congratulations to the following IEEE Madison Section members who recently became Senior Members of the IEEE:

- ♦ Nam Sung Kim

IEEE and Eta Kappa Nu Honor Society Sign Merger Agreement

24 February — IEEE signed a merger agreement with the honor society ETA Kappa Nu (HKN), a nonprofit, public-service organization comprising nearly 200 university chapters, 14 February 2009. The merger, which will go into effect by mid-2009 pending final approval, will make HKN the official honor society of IEEE, recognizing scholarship and academic excellence and identifying student leaders, young professionals and eminent scholars in the IEEE's technical fields of interest.

Under the agreement, HKN will become an organizational unit of IEEE, governed by the new IEEE-HKN Board of Governors. A restricted endowment will be created in the IEEE Foundation to support HKN's educational, societal, and recognition activities. In addition to holding HKN's current assets, the new endowment will receive an initial donation of US\$1.2M from IEEE.

Read the full press release at <http://www.ieee.org/web/aboutus/>

Transitioning from College to Work

by Nita Patel

Congratulations! You just graduated from college and landed your first full-time job. Now what?

Each year, an average of 1.5 million young adults will leave the relative comfort of college and enter the uncertainty of a new job. If you are one of these recent graduates, the following tips can help ease your transition.

1. Prepare Physically – You should prepare both mentally and physically for work. Adjust your lifestyle, if needed, to match normal work hours. Cut out the all-nighters and late-night social events to prepare your body for the routine of working from 9-5.
2. Manage your expectations – Just because you were a whiz in college will not automatically make you one at work. You might have to ease your way into the group by earning your place. Prepare yourself mentally to not know everything on your first or even fortieth day on the job. Focus on your strengths (jot them down to remind yourself) and think about how you can use those strengths to solve the problems in your new position.
3. Focus on familiarization – Make familiarization your objective for the first week at your new job. Meet new people and figure out who's who. Learn the basics like where the bathrooms, meetings rooms, supplies and cafeteria are located. Learn the basics of what you are expected to be doing, who is on the team, what resources

are available and what your objectives are. Learn the basics about the company, people and project.

4. Establish your reputation – Demonstrate good work habits, a positive attitude and dependability. Show up early, stay late and go the extra mile. Organize your work and plan out your tasks. Ask questions to help increase your understanding. Be flexible and adaptable because you may encounter changing tasks and priorities. Exhibit an inquisitive and strong work ethic.
5. Listen to learn – Listen 80 percent and talk only 20 percent of the time. Listen to understand the problems that need to be solved. You can make stronger suggestions and present your ideas better after listening and understanding. Listen to the feedback you will get through quarterly reviews. If the process has only yearly performance reviews, ask for more frequent reviews your first year. If you do not understand, ask questions and really listen to the answers.
6. Communicate appropriately – Make sure you use proper grammar and write coherently. If you need to use tools such as spell-check, do it. For important presentations or memos, ask someone to proofread or listen to your presentation before communicating the information. Practice important conversations with a friend or co-worker before having them at work. Think before speaking by pausing and quickly organizing the main two or three points in your mind before answering that question. Join professional organizations such as Toastmasters to help you improve your extemporaneous speaking and presentation skills.
7. Dress professionally – Most engineering jobs do not require a

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suit and tie. However, even if the culture accepts jeans, don't wear them. Dress in slacks & button shirts; that is, business casual. Yes, you might stand out a bit but isn't that what you want?

8. Seek a mentor – Seek out mentors both inside and outside the organization. Mentors inside the organization can steer you in the right direction. Mentors outside the organization can serve as sounding boards. When seeking a mentor, first identify what you want to learn. It's much easier to approach someone who excels in the skills you want to learn and ask that individual for advice.
9. Network – Stay involved with your college friends, but also develop professional networks. Continue your membership in a professional organization (such as IEEE). Think about joining a GOLD group (Graduates Of the Last Decade) to share concerns, ideas and establish friendships. Most importantly, make sure you establish and keep an active network.
10. Have Fun – You will be working for the next 30 to 40 years so enjoy the journey as you continue to learn and grow. Don't be discouraged if the position does not work out. Focus on the long-term objectives. Remember that your career will be a cross-country marathon, not a straight-as-an-arrow sprint.

Nita Patel is an IEEE senior member, and a student activities chair in the IEEE New Hampshire Section. She was a recipient of the 2007 IEEE-USA Professional Achievement Award for developing the technical workshop program and supporting the professional program for the 2007 IEEE-USA annual meeting. Comments may be submitted to todaysengineer@ieee.org. Opinions expressed are the author's.



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Transitioning from College to Work
Merge Agreement
Nu Honor Society Signs
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Meeting Notices

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