



# Madison Section NEWSLETTER

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February 2005

## National Electrostatics Corp. Tour: Multi Million Volt Ion and Electron Beam Accelerators: Principles of Operation and Applications

**Date/Time:** Thursday, February 17, 2004, lunch at 11:30 AM - 12:15 PM, talk/tour at 12:30 PM - 1:15 PM

**Speaker:** Dr. Greg Norton, Vice President, Marketing

**Location:** National Electrostatics, 7540 Graber Road, P.O. Box 620310, Middleton, Wisconsin 53562, 608.831.7699

**Menu:** Optional lunch on your own at 11:30 AM at Fitzgerald's restaurant located at 3112 West Beltline Hwy (see map)

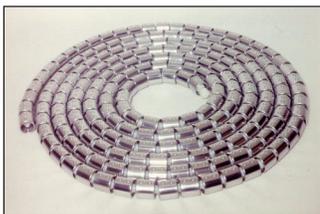
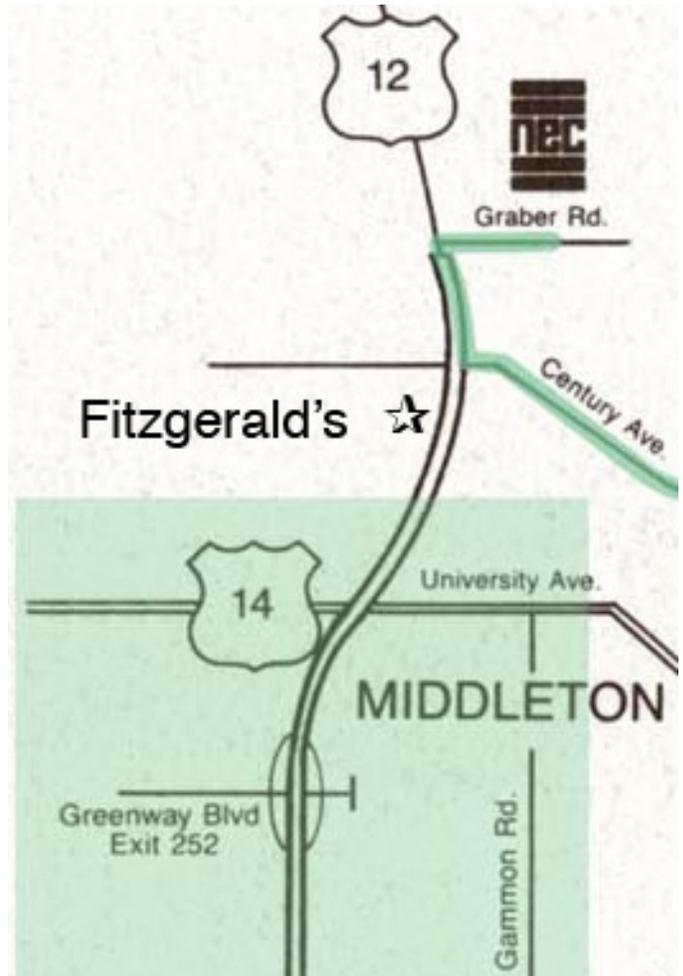
**RSVP:** by February 14th to Les Schroeder via email (l.schroeder@ieee.org) or call 608.444.9144. Please RSVP for both the lunch and the talk/tour.

**This presentation will be limited to 25 participants, please RSVP early.**

*Non-member guests are always welcome!*

This meeting will consist of an optional lunch at Fitzgerald's (see map) and then a talk and tour at National Electrostatics Corp.

National Electrostatics Corp. manufactures multi million volt, direct potential drop ion and electron beam accelerators. These systems produce high energy beams of charge particles for a wide range of analysis and materials modification applications. Although these accelerators were originally developed primarily for nuclear structure research, they are now being used in a large number of very diverse fields including semiconductor research, environmental studies, climatology, art authentication, and, more recently, pharmacokinetics research.



Dr. Gregory A. Norton is Vice President of Sales, Marketing and Quality Assurance at National Electrostatics Corp. He received his PhD in experimental nuclear physics from Ohio State University in 1973. He has been involved in the initial design and field commissioning of some of the world's largest electrostatic accelerators. Dr. Norton has published twenty-eight papers describing the applications and advancements of all phases of electrostatic ion beam systems.

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## High Speed Circuit Simulation for Signal Integrity & EMI

**Date/Time:** Thursday, March 17, 2004, 11:45 AM - 1:00 PM

**Speaker:** Roy Leventhal

**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 student members)

**RSVP:** by March 14th to Les Schroeder via email ([l.schroeder@ieee.org](mailto:l.schroeder@ieee.org)) or call 608.444.9144

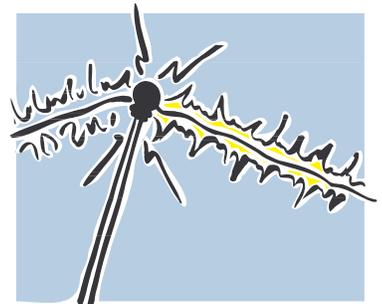
*Non-member guests are always welcome!*

IEEE-EMC Society member Roy Leventhal will present a review of Electronic Design Automation (EDA) tools as applied to simulation of high-speed circuits to design for Signal Integrity, Crosstalk, Power Integrity, and EMI/EMC. The main modeling focus will be on the IBIS (Input/Output Buffer Information Specification) model. SPICE and Scattering-Parameter models will also be discussed. In addition to technical descriptions, the discussion will cover some aspects of design process flow, and model accuracy and availability. The conclusion of the presentation will be a question and answer session where experiences on these matters can be shared.

Roy Leventhal is an independent consultant. He has spent 45 years in electronics design at large OEMs. He holds a BSEE/MSEE from Illinois Institute of Technology plus additional graduate work at the University of Wisconsin - Milwaukee, concentrating on RF and microwave subjects. His engineering experience is specialized in semiconductor modeling, device physics, component reliability, failure analysis and simulation for signal integrity, EMI, and RF circuit design.

## Broadband Power Line (BPL) Communication Presentation

An upcoming tele-seminar titled "Technical and Policy Considerations for Broadband Power Line (BPL) Communication" sponsored by the Power Systems Engineering Research Center at the University of Wisconsin - Madison may be of interest to some IEEE members.



The presenter is Robert G. Olsen, Associate Dean, College of Engineering and Architecture at Washington State University and the seminar will take place on March 1, 2005 between 1:00 PM to 2:00 PM in room 1721 Engineering Hall located at 1415 Engineering Drive. For more information see <http://www.engr.wisc.edu/news/events/index.phtml?eventid=2188> or contact Dennis J. Ray at 265-3808 or [djray@engr.wisc.edu](mailto:djray@engr.wisc.edu). Please RSVP to Dennis and note that there will be a limit of 20 people for this seminar.

Abstract: The use of the electric power transmission and distribution system as a transmission medium for broadband communications is considered. It is found that there are three significant technical hurdles to be overcome before successful implementation of such systems can be accomplished. The first is the relatively high attenuation rate due to discontinuities such as taps, transformers and other devices connected to the system. The second is the relatively high background noise on power lines. The third is government regulated limitation on transmitted power for the unlicensed systems that use the power system as a communications medium. Finally, some of the recent rulings by the Federal Communications Commission in the United States will be reviewed along with the reaction to these rulings. The implications for the BPL industry will be discussed.

## IEEE Job Site

The IEEE Job Site is an online recruitment service that offers all IEEE members exclusive, free access to real time job matching capabilities. You can use your IEEE Web Account to register a job candidate profile in five easy steps:

1. Visit <http://www.ieee.org/jobs>
2. Click on the "IEEE Members" link
3. Choose "Register/profile your ideal job" on the landing page
4. Complete the basic information for your job candidate profile (professional skills, required salary, location of desired position, etc.)
5. Post your resume online and set up a job search agent

Positions of interest will automatically be routed to you by email. Your identity will be hidden until you choose to reveal it to prospective employers. Take advantage of the expanding technology job opportunities throughout the global community. Whether or not you are actively seeking new employment, please register with the IEEE Job Site today!

## World Bytes: World Population Projections

by Terrance Malkinson

### A THOUGHT TO CHEW ON

As we start a new year, many of us reflect on the past and give thought to the future. World population statistics tell a story about how our world is changing. In 2004, the world's population reached 6.4 billion. It continues to grow by about 80 million each year. (World Population Highlights, Lori Ashford; [www.prb.org](http://www.prb.org)). The population division of the United Nations ([www.un.org/popin](http://www.un.org/popin)) has prepared new long-range projections for the world population. This projection is particularly significant in that population numbers are revised downward from previous forecasts. Key findings include:



## Winter/Spring 2005 Short Courses from Engineering Professional Development

- **Introduction to Data Communications**  
*February 28–March 2, 2005 in Madison, WI*
- **Introduction to Planning and Designing Fiber to the Premises**  
*March 9–10, 2005 in Madison, WI*
- **Basic Telephony and Digital Switching**  
*March 15–18, 2005 in Madison, WI*
- **Introduction to Right-of-Way for Utility Engineers, Technicians and Managers**  
*April 6–7, 2005 in Madison, WI*
- **How to Develop an Effective Business Case for Engineers and Technical Managers**  
*April 26–27, 2005 in Madison, WI*
- **The Engineer in Transition to Management**  
*May 2–4, 2005 in Madison, WI*

For further information...

Web: <http://epd.engr.wisc.edu> or E-mail: [danbeck@engr.wisc.edu](mailto:danbeck@engr.wisc.edu)  
College of Engineering Department of Engineering Professional Development

- World population will stabilize at 8.9 billion.
- World population size is sensitive to small but sustained deviations of fertility from replacement level.
- Growth scenarios suggest a continuing shift in the geographical distribution of the world's population, with about a third of the world's population living in China and India, a quarter in the rest of Asia, and another quarter in Africa.
- Population growth scenarios suggest a continuing shift of the age distribution toward older ages, with the average life expectancy being 85 to 95 years.

The September/October 2004 issue of World Watch Magazine ([www.worldwatch.org/pubs/mag/2004/175/](http://www.worldwatch.org/pubs/mag/2004/175/)) focuses on many important issues related to the world's population and population growth. The implication of these discussions is that in historical terms, the time available is short and successful adaptation will require us to make societal changes now. As we plan our careers and lives — as well as advise our children — it is important to think futuristically about how the world is changing.

*Terrance Malkinson is a proposal manager/documentation specialist; an elected Senator of the University of Calgary; an elected Governor of the Engineering Management Society; international correspondent for IEEE-USA Today's Engineer; editor-in-chief of IEEE-USA News and Views; and editor of the IEEE Engineering Management Society Newsletter. He can be reached at [todaysengineer@ieee.org](mailto:todaysengineer@ieee.org). Views expressed in this article are the author's and do not necessarily reflect those of IEEE-USA.*

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