

President's Message

There has been a whirlwind of activity in PELS since the last newsletter. I'm not sure where to start. Much of my time has been spent preparing for our Society Review, which occurred in June. Every five years, the IEEE Society Review Committee, as part of the Technical Activities Board, goes over the activities, publications, finances, conferences, etc., and makes recommendations to the Society. I am proud to say that this came off without a hitch. PELS is in solid financial condition, even in the face of hard times for IEEE as a whole. Our conferences are doing well and our publications are being run efficiently, while maintaining the highest quality. I would like to extend my sincerest thanks to Art Kelley, Transactions Editor; Gene Wester, Newsletter Editor; Ron Harley, Publications Chair; and Bob Myers, PELS Executive Director, for their time and efforts in preparing for the society review.



On a more important note to all of us as members, I am very happy and excited to report that IEEE has approved a new periodical publication for our society, the *Power Electronics Letters*. This will be the second peer-reviewed archival publication for PELS, and is slated to start in 2003. In contrast to the Transactions, this publication will consist of short (2-3 page), very timely (6 weeks from submittal to publication) papers. This will allow authors to report on very new ideas that demonstrate interesting innovation, but may not have been completely developed at the time of submittal. This publication will be only available in electronic format through IEEE Explore. Phil Krein has agreed to be the editor of this new publication. You will hear much more from him in upcoming newsletters concerning calls for papers, deadlines, and many more details.

Finally, the Administrative Committee of PELS has voted to expand the Newsletter from 12 to 20 pages. This change is expected to occur sometime early in 2003. The additional pages will consist, in part, of very practical, technical articles, similar to the current "tricks of the trade." Plans to add a limited amount of advertising in the news-

Continued on page 2

New IEEE Power Electronics Letters

The Society and the IEEE have approved a new archival journal, called the "IEEE Power Electronics Letters," or "PEL Letters" for short. This is an all-electronic publication that will debut in 2003.

PEL Letters is dedicated to quick publication of peer-reviewed short papers. Papers for PEL Letters will not exceed three pages in length, and are intended to present new developments and useful, original ideas that advance the field of power electronics. There will also be current-awareness content such as abstracts of recent patents or conference sessions.

This quarterly publication, which will be accessible through IEEEExplore, will be available to society members at a subscription rate of US\$10. It should be listed in the membership renewal form late this year.

The formal Call for Papers for the PEL Letters can be obtained through the society web site at <http://www.pels.org>.

Phil Krein
PEL Letters Editor
University of Illinois
PELletters@pels.org

New PELS Transactions Editor-in-Chief

Dr. Daan van Wyk has been named as the new Editor-in-Chief (EIC) of the *Transactions* of the Power Electronics Society. Daan is well-known in the Power Electronics Society, having served in numerous offices including Member-at-Large of the Administrative Committee, Power Packaging Committee, Fellows Committee, Nominating Committee, and currently as *Transactions* Associate Editor.

The retiring EIC, Dr. Arthur Kelley, has used innovation, organization, and automation very effectively during his three-year tenure to greatly reduce the backlog and processing time of papers submitted to the *Transactions*.

Transfer of records from one EIC to the next is a huge problem, so the new and retiring EICs will overlap for a transitional period of time. During this transition authors should communicate with a single EIC, as determined by the date their paper is first submitted to the *Transactions*.

Continued on page 2

Society Awards Presented at PESC® 2002

The annual Awards Banquet of the IEEE Power Electronics Society was held June 27 at the 2002 Power Electronics Specialists Conference in Cairns, Australia. It honors recipients of the William E. Newell, Distinguished Service, Richard M. Bass, Best Papers, and Best Chapter Awards.

William E. Newell Award to Emanuel "Manny" Landsman

Dr. Emanuel E. Landsman, cofounder and Vice-President of American Power Conversion Corp, is the 2002 recipient of the William E. Newell Power Electronics Award. Each year since 1977 the Power Electronics Society has presented the Newell Award to a recipient judged to be outstanding in the multidisciplinary field of power electronics. The recipient receives a suitably inscribed plaque and a cash award of \$1,750, which he has elected to receive at APEC 03.



Emanuel (Manny) E. Landsman was born in Brooklyn, New York in January 1937. He graduated from Bronx High

Continued on page 3

In This Issue

President's Message	1
New IEEE Power Electronics Letters	1
Society Awards Presented	1
New <i>Transactions</i> Editor	1
New Email Address for <i>Newsletter</i> ...	2
Call for IEMDC '05 Proposals	2
Become an IEEE Senior Member	2
For Quicker Delivery	2
INTELEC® '02 Flyer	4
Tricks of Trade®: Voltage Sensor	5
PWM Session Report: Education	5
PESC® '03 Call for Papers	6
PESC® '02 Recap + Photos	7
Call for Education Evaluators	8
AdCom Meeting Highlights	9
Call for AdCom Nominations	9
IEMDC '03 Call for Papers	10
Candidates for Division II Director ..	11
Meetings of Interest	12

New Email Address for Newsletter Editor

The PELS Newsletter Editor has a new functional email address (see masthead on this page). It provides two main benefits: (1) it is a stable — and hopefully, easily remembered — address that does not change when an editor retires or changes email service providers; and (2) the editor can easily sort newsletter email from other personal and business email. Please take a moment now to update your email directory with the new address, and you should never have to change it again.

As this issue marks the completion of three years as editor, I would like to inject a brief personal message. Having learned the basic mechanics of operating the publish-

ing software, most of my editorial time is spent interacting with other PELS volunteers. Often it involves my requests for additional information or for clarification related to a proposed newsletter item, and yes — occasionally even arm-twisting someone for a submittal. However, in all honesty that interaction is the best part of the job. PELS volunteers are immensely talented, modest, congenial, generous, and absolutely dedicated to making PELS a better and better organization. It had been an educational, inspirational, and enjoyable experience. If you have an opportunity to serve the Power Electronics Society, go for it; you will be glad you did.

Gene Wester
pelsnews@ieee.org



IEEE Power Electronics Society Officers

Thomas Habetler, President
 Dean Patterson, V. P., Operations
 F. Dong Tan, V. P., Meetings
 Steven B. Leeb, Treasurer
<http://www.pels.org>

The IEEE Power Electronics Society Newsletter (ISSN 1054-7231) is published quarterly by the IEEE Power Electronics Society of the Institute of Electrical and Electronics Engineers, Inc. Headquarters: 3 Park Avenue, 17th Floor, NY 10016-5997. \$1.00 per member per year (included in Society fee) for each member of the Power Electronics Society. Postmaster: Send address changes to IEEE POWER ELECTRONICS SOCIETY NEWSLETTER, IEEE 445 Hoes Lane, Piscataway, NJ 08855-1331.

News items should be sent to: Gene Wester, Editor, PELS Newsletter, Jet Propulsion Laboratory, M/S 303-300, 4800 Oak Grove Drive, Pasadena, CA 91109-8099, USA; TEL: +1 818 354 3489; FAX: +1 818 393 4272; EMAIL: pelsnews@ieee.org. Deadlines for copy are March 15, June 15, September 15 and December 15. Submission of items by email in plain-text format is preferred. Plain-text (straight ASCII) submissions on 3.5" diskettes are welcome, and should be accompanied by a backup printout. Fax submissions are acceptable, but are least desirable. Full-page calls for papers and announcements of PELS-sponsored conferences are welcome and should be sent as both high-quality hard copy and RTF format file.

The editor gratefully acknowledges the Jet Propulsion Laboratory for significant support of his editorial activities.

©2002 IEEE. Permission to copy without fee all or part of any material without a copyright notice is granted provided that the copies are not made or distributed for direct commercial advantage, and the title of the publication and its date appear on each copy. To copy material with a copyright notice requires special permission. Please direct all inquiries or requests to the IEEE Intellectual Property Rights Manager, TEL: +1 732 562 3966, FAX: +1 732 981 8062, EMAIL: copyrights@ieee.org.

Periodicals Postage paid at New York NY and at additional mailing offices.

PRINTED IN THE U.S.A.

President's Message from page 1
 letter are also in the works. The cost for this expansion has been included in the 2003 Society budget.

I hope that these important new and improved publications will better serve you as a society member looking for the best possible access to technical information in the power electronics arena.

As always, your questions and comments for making PELS better are welcome.

Tom Habetler
thabetler@ee.gatech.edu

New Transactions Editor from pg1

• For papers that are first submitted before October 1, 2002, contact the retiring EIC:

Arthur Kelley
 Editor in Chief, PELS Transactions
 (2000 – 2002)
 Linear Technology Corporation,
 Raleigh Design Center
 15100 Weston Parkway, Suite 202
 Cary, NC 27513
 Voice: +1 919 677-0968
 Fax: +1 919 677-9814
 Email: peleditor@ieee.org

• For papers that are first submitted after September 30, 2002, contact the new EIC:

J.D. van Wyk
 Editor in Chief, PELS Transactions
 Center for Power Electronics Systems
 667 Whittemore Hall
 Blacksburg, VA 24061-0179
 Phone: +1 540 231-7497
 Fax: +1 540 231-6390
 Email: peleditor@ieee.org

Call for IEMDC'05 Proposals

The Power Electronics Society is the lead organizer for the 2005 International Electric Machines and Drives Conference (IEMDC). We are seeking proposals from potential conference chairs for this meeting.

The conference is to be held during the week of either May 15, 2005 or May 22, 2005. The schedule and format should be similar to those for the forthcoming 2003 conference, which is described at <http://wisperc.ece.wisc.edu/users/iemdc03/>.

The proposal outline for 2005 should be submitted by September 27, 2002 to the IEMDC steering Committee Chair via Bob Myers, PELS Administrator <bob.myers@ieee.org>. The proposal should include: local conference facilities, names of proposed General Chair and Program Chair, and outline of budget. Each proposer for 2005 should plan to attend the IEMDC Steering Committee meeting to be held in Pittsburgh, PA on October 13, 2002 to make a short presentation. Further information may be obtained from the IEMDC Steering Committee.

Prof. P. T. Krein
 Chair, IEMDC Steering Committee
p.krein@ieee.org

Become an IEEE Senior Member

The Power Electronics Society is conducting a drive to nominate new IEEE Senior Members from our Society. The requirements for Senior Membership are (a) ten years of professional practice and (b) five years of significant performance, such as substantial job responsibilities. If nominated by PELS, you need only two additional references (senior members who sponsor you), and we can help you find them.

For further information, please contact Enrico Santi, PELS Membership Chair, at <esanti@engr.sc.edu>.

Quicker News Delivery

The Power Electronics Society Newsletter is available on the internet in PDF format approximately three weeks sooner than hardcopies can be printed, labeled, and delivered by postal mail. To receive email notification when the newsletter is posted on the PELS server, go to <http://www.pels.org/Mailing/MailForm.html> and add your name to the notification service list. Additionally, the email notification sometimes includes timely announcements that are not in the printed newsletter.

Society Awards

from page 1

School of Science in 1954; studied Electrical Engineering at The City College of New York (CCNY); and transferred to M.I.T. where he received a BSEE, 1958, MSEE, 1959, Doctor of Science, 1966. In 1961, he was appointed to the M.I.T. staff position of Instructor to teach Electrical Engineering courses and to work on his Doctoral Thesis. After graduation he joined the Technical Staff at M.I.T. Lincoln Laboratory to work on the design and construction of dc-to-dc power converters, servo amplifiers, and dc-to-ac inverters to be used in three synchronous orbit Air Force communications satellites. He was responsible for the design, construction and testing of all the power converters and inverters used in these spacecraft programs, supervised the Nickel-Cadmium battery selection and evaluation program, participated in Solar Panel design, and designed and built a 1500 watt "Rotary Transformer" to replace sliprings. Following the successful completion and on-orbit operation of these satellites for more than twice their design life, he helped to form the Energy Systems Engineering group at Lincoln Laboratory. The primary mission of this group was to design and install demonstration photovoltaic power systems. He acted as consultant to the US Department of Energy to monitor programs to develop advanced power conversion for photovoltaic power systems.

While at Lincoln Lab, he helped organize and contributed technical papers to the Power Electronics Specialists Conference since its organization in 1968. The first formal Power Conditioning Specialists Conference was held at NASA Goddard Space Flight Center in Greenbelt MD in 1970 under the IEEE Aerospace and Electronic Systems Group. Dr. Landsman wrote one of the early papers on transient and stability analysis of pulse-width-modulated converters. He also presented a paper on "A Unifying Derivation of Switching DC-DC Converter Topologies" at the 1979 Power Electronics Specialists Conference in San Diego CA, where a lively discussion was held about the Cuk topology.

In early 1981, he and two other engineers left Lincoln Laboratory to form American Power Conversion Corp. APC designed and built utility-interactive inverters for use with photovoltaic power systems. In 1985 APC developed its first uninterruptible power supply for use with desktop computers, went public in 1988, and has grown to

\$1.5 billion in sales with 5000 employees. Dr. Landsman was involved in product design, product safety and emissions testing, and the writing and review of US and international product safety standards. He has mentored many young APC engineers, some of whom have gone on to start their own companies. Recently he headed the APC involvement in the DOE Energy Challenge where 14 universities competed for prizes to design low-cost inverters for fuel cell sources.

Dr. Landsman is a registered professional engineer in the state of MA since 1959 and a licensed amateur radio operator since 1952. He is a member of Sigma Xi and Eta Kappa Nu.

Bob White Honored for Distinguished Service

Bob White is the 2002 recipient of the Distinguished Service Award. The Distinguished Service Award has been presented annually since 1997 to honor long and distinguished service to the welfare of the Power Electronics Society at an exceptional level of dedication and achievement. The prize consists of an engraved plaque and a cash award of \$1,200, which the recipient has elected to receive at APEC 03.

Bob White has been actively supporting the IEEE Power Electronics Society for 15 years. He was elected to the Adcom three times, served two terms as the Society's Technical Vice President and represented



PELS in the 1990 IEEE Colloquium to South America. Bob is well known for his key role in developing and supporting APEC. He has regularly presented papers and seminars at APEC since 1987. He has served on the conference committee in various roles since 1988 and served twice as the General Chair (1990, 2000). Bob is also the author of the APEC Operating Agreement that brought together PELS, the IAS, and the Power Source's Manufacturer's Association as co-sponsors. He received wide recognition and appreciation for his work developing the APEC web pages for APEC 2001.

Bob has a SBEE from MIT (1980) and a MSEE from the Worcester Polytechnic Institute (1990). He received the IEEE Third Millennium Medal in 2000.

Bob is currently a Staff Engineer with Artesyn Technologies, a manufacturer of power supplies and dc-dc converters for the

computing and telecommunications markets. In his more than 20 years of experience, Bob has also worked for Zytac Corporation, AT&T Bell Labs/Power Systems, the Digital Equipment Corporation and General Electric. He served in the U.S. Air Force from 1973 to 1976. Bob has broad experience in designing power supplies, dc-dc converters and power systems for electronic equipment and is widely recognized as an expert in power systems architecture.

Pallab Midya Receives Richard M. Bass Award

Dr. Pallab Midya is the 2002 recipient of the Richard M. Bass Outstanding Young Power Electronics Engineer Award. The Award has been presented annually since 1997 to recognize outstanding achievement in the field of power electronics by an engineer less than 35 years of age. It was renamed in 1999 in memory of the late Richard M. Bass of the Georgia Institute of Technology in Atlanta, GA. The prize consists of a certificate, a cash award of \$500, and reimbursement for transportation expenses up to \$500 to attend the annual PELS Awards Ceremony. The recipient has elected to receive his award at APEC 03.



Dr. Pallab Midya received his B.Tech from IIT, Kharagpur, M.S. from Syracuse University, and Ph.D. from the University of Illinois at Urbana -Champaign. In India he received the "National Talent Scholarship & Award" from NCERT, and "National Science Talent Award" from Jagdish Bose Research Institute. His Ph.D. thesis was in Power Electronics, "Nonlinear Operation and Control of DC to DC Switching Power Converters." He was involved in the solar car race SunRayce1995 and was the inventor of the maximum-power-point tracking converter for the solar panels. He has made seminar presentations and served on a Ph.D. thesis committee at UIUC. He has authored 22 conference and journal papers.

Since 1995 he has been with Motorola labs in Schaumburg, IL. He is a Distinguished Member of the Technical Staff. He introduced supply modulation as a method to increase RF transmitter efficiency, and was the chief architect of an IC that doubled the transmitter efficiency of Motorola's satellite phone. This technology has since been incorporated into Motorola cellular phones. He initiated a research program for direct

Continued on page 8



Reliable Energy

The Driving Force Behind Dependable Communications

September 29 to October 3, 2002

Palais des Congès de Montréal
Montréal, Québec, Canada

ENERGY CONVERSION, STORAGE and SYSTEM ENGINEERS

High quality technical papers on the latest design advances

NETWORK OPERATORS

Topical workshops and papers on power system application, use and maintenance

EQUIPMENT MANUFACTURERS

Extensive exhibition of energy products and services for communications networks

Professional Development Program

A series of tutorial sessions will be offered over the four days of the conference. Update your power and communication systems knowledge and earn professional development credits.

INTELEC®, the International Telecommunications Energy Conference, presents its 24th annual international forum for the exchange of ideas and information on communications power equipment in Montréal, Canada. This conference provides a unique opportunity for network operators and designers to interact directly with the designers, manufacturers, and distributors of power equipment.

Be one of the more than 1,500 representatives from more than 50 countries expected to attend. For further information, please check the INTELEC website at www.intelec.org.

TELECOMMUNICATIONS ENERGY SYSTEMS

www.intelec.org

Sponsored by:



Tricks of the Trade: Accurate “No-power” Isolated Voltage Sensor[®]

Contributed by Phil Krein
Professor, Electrical & Computer Engr
University of Illinois – Urbana
p.krein@ieee.org

Many power converters and battery systems need wide-bandwidth sensing of analog voltages across an isolation barrier. This is true in high-performance isolated dc-dc converters, inverters, voltage-sensing battery charge systems, and other applications. Optocouplers are useful for such measurements, but heroic designs are often needed to get the job done. It is not difficult when an isolated power supply is available to operate the voltage sensor. For example, logic-type couplers can be used with voltage-to-frequency converters or other digital modulation methods to process the sensed signal and convert it to a form that is easy to deliver to the earthed side of the isolation barrier. However, it would be much easier if a direct sensing approach could be used without the need for isolated power.

One simple but effective trick for measurement of isolated dc voltages is to take advantage of a dual analog optocoupler. For instance, Fairchild sells several matched dual phototransistor optocouplers, such as the MOC207M, that are well-suited for the purpose. The measurement impedance might not be as high as desired, since ideally at least 1 mA will be used on the isolated side, but the simplicity is a big advantage. The circuit is shown in Fig. 1. Here

the lower optocoupler channel provides sensing, acting in essence as an isolated current-to-voltage converter. The upper channel provides calibration: the opamp forces the upper output to match the lower one. If the two channels (input resistors, optocouplers, and output resistors) are well-matched, then the upper *input* will match the lower input, and the opamp output becomes a low-impedance image of the voltage to be sensed.

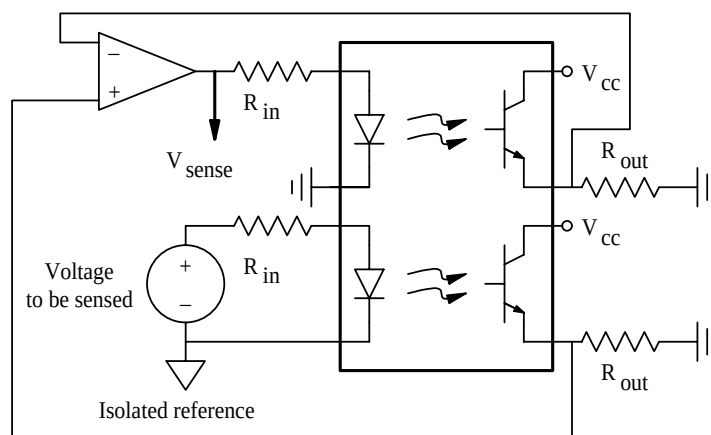


Fig. 1. Dual optocoupler for “no-power” analog voltage sensing.

An important requirement is that the voltage to be sensed must be high enough to drive the LED. The sense voltage must be larger than about 2 V for proper operation of the circuit in Fig. 1. This is sufficient for a wide range of applications in converter control and battery management.

Consider, for example, an isolated battery monitoring system, based on nominal 12 V batteries. Resistance $R_{in} = 12 \text{ k}\Omega$ will

give about 1 mA of drive current at a charging level of 13.8 V. Resistance R_{out} depends on desired speed and optocoupler characteristics, but is probably on the order of 2 k Ω or so with V_{cc} set to 15 V. (In the circuit as shown, the opamp can be driven from a single-ended supply.) The output terminal of the opamp will match the voltage to be sensed if the upper and lower resistances and channel transfer gains all match. Assuming 1% matching of each of these, the voltage matching would be on the order of 3%. No separate power source is needed on the isolated side. Is the 1 mA of sensing an issue? This depends on the application. For example, high-end 30 Ah lead-acid batteries have a self-discharge rate that corresponds to just about 1 mA. In such a case, the sensing current is on the same order, and system performance will not be affected much. For more sensitive applications, an optically coupled switch can be used to make the connection only when the information is required.

Phil Krein is a frequent contributor to *Tricks of the Trade*. For additional information and photo of author, see the candidate statements for IEEE Division II Director in this issue.

Editor's note: You are invited to send your own favorite Trick of the Trade for publication in the PELS Newsletter. Just send it in any convenient medium, spelling out symbols such as Greek letters. Also, send along a recent photo, color or b/w of any size, for insertion along with your favorite Trick.

PWM Session Report on Power Electronics Education

A truly international panel and cold Aussie beer proved to be an irresistible combination for many attendees at PESC[®] 2002. The panel members of the PWM (Problem-Wisdom Matching) Session on Power Electronics Education were Professor Hirofumi Akagi, Tokyo Institute of Technology, Professor Johann Kolar, ETH Zurich, Professor Ned Mohan, University of Minnesota, and Dr Geoff Walker, University of Queensland.

Professor Kolar gave us a description of how Power Electronics Education is structured in Europe and in particular he elaborated on how his interactive Power Electronics Seminar (iPES), conventional simulation and laboratory courses are integrated. Since each PESC'02 attendee had

already received a complementary iPES CD, there was keen interest to find out more about iPES and Professor Kolar's philosophy which had led to its development and use.

Professor Mohan spoke about the restructuring of power courses at the University of Minnesota and the effect it had had on significantly increasing enrolments. Some debate followed on what we should be teaching at the undergraduate and graduate levels. Professor Mohan responded by telling us about his modular switch building block philosophy and development of Power Electronic laboratory equipment through NSF grants.

Dr Walker, a younger academic, gave us a down-under Australian perspective on

Power Electronics education. It was refreshing to hear his philosophy on education and to know that there is a strong desire amongst the younger generation of academics to continue to give students the opportunity to complete “hands-on” project work.

Finally Professor Akagi gave us an interesting presentation on some of the unique characteristics of the Japanese education system. Power electronics is all pervasive in Japanese technology and they have some wonderful applications examples, such as the Shinkansen or bullet trains. Professor Akagi's message was that we should identify relevant and familiar examples of the applications of power electronics to enthuse students and to gain their interest and struc-

Continued on page 9

FIRST ANNOUNCEMENT AND CALL FOR PAPERS

for the 34th Annual



Power Electronics Specialists Conference

June 15-19, 2003

Hotel Hyatt Regency Acapulco

Acapulco, Mexico

Website: <http://www.pesc03.org/>

CENIDET (National Center for Research and Technological Development) and the IEEE Morelos Section are proud to host PESC'03 in the well-known port of Acapulco, Mexico. PESC'03 is organized and sponsored by the IEEE Power Electronics Society.

Topics of Interest

DC-DC Converters
Inverters and Inverter Control Techniques
Power Semiconductor Devices
CAD Modeling
Integration, Packaging and Modules
DSP Applications
Integrated Diagnostics
Intelligent Systems

Rectifiers and AC-AC Converters
Motor Drives
Power Quality and Utility Interface Issues
Passive Components
Energy Storage
Aerospace Power Applications
Alternative Energy Resources
Distributed Generation

Deadlines

Submission of Abstracts & Digests
Authors Notification of Acceptance
Submission of Final Manuscript

October 11, 2002
February 7, 2003
April 11, 2003

To be considered for the conference program, authors should submit:

- 300 word abstract, including Title, Author name(s), Affiliation(s), Contact Author, Mailing address, Telephone and Fax numbers, and Email address. A one-page limit will be strictly enforced for the abstract.
- 5 page digest, 1½ spaced on standard Letter/A4 paper size, outlining the work to be presented, the objectives of the paper and the goals achieved. Key equations, figures, tables, and references should be included, all within the page limit. Digests exceeding the 5 page limit will be evaluated using only the first 5 pages — all additional pages will be discarded.

Paper submissions will be accepted electronically through the web site. Instructions to submit abstracts and digests will be posted on the web site by 1 August 2002.

PESC'03 General Chair

Jaime Arau
Electronics Department
CENIDET

PESC'03 Technical Chair

Hugo Calleja
Electronics Department
CENIDET

PESC'03 Conference Secretariat

Electronics Department – CENIDET
Interior Internado Palmira s/n
62490 Cuernavaca, Morelos, Mexico
Email: secretariat@pesc03.org
Phone: +52 (777) 3187741
Fax: +52 (777) 3122314

PESC® 2002 Recap

Gdaymadouryagoinorright?

Well its all over, what a feeling, not only relief but also a feeling that it all went very well, thanks to some remarkable people who really pitched in — our committee, the people from Intermedia, and the staff of the Cairns Convention Centre.

Personal Highlights:

- The effectiveness of a central server uploading all the digital presentations to the dedicated computers in each of the presentation rooms. This was done over a LAN, with graduate students keeping a very close eye on the operation in each room. We had some concerns prior to the sessions with fonts and equation editors, but in execution nothing crashed, everything worked, nobody had to reboot at any time, and not a second was lost—a triumph for technology!
- Our colleagues from Spain, Vicente Salas and Manuel Gordillo, who delighted us for an hour Monday evening playing flute and piano.
- The presentation and discussion surrounding Uwe Drofenik and Johann Kolar's Interactive Power Electronics Seminar (iPES) CD. This software provides a really



significant advance in the tools we have for explaining power electronic circuits in, but not limited to, the education process. Most of us bemoan the difficulty of repeating drawings on a blackboard or paper to show a sequence of events, but this seems to do it excellently, and they have covered a very wide range of circuits and systems. The animations include spatial diagrams with time variation as with fields, time waveforms for a circuit with elements you can vary in the circuit, Phasor and vector diagrams with parameter variation, and animations of circuit diagrams. If you haven't seen it, have a look at the CD we gave you, or if you weren't there have a look at www.ipes.ethz.ch. If neither of these work, Bob Myers has a few remaining CDs; give him a call at bob.myers@ieee.org.

- Djengi Buai, the aboriginal - Torres Strait Islander dance group. Their leader Nathan (yes that's his ordinary name, not his stage name) played didgeridoo for us on Sunday evening and then chatted to the attendees for nearly two hours, coaching anybody who wanted a chance to try and get a sound out of this remarkable instrument. Then for the dinner he returned with his dance group. I was delighted with their high-energy, very tight performance. Chatting afterwards they told me that their ambition is to do for Australian Aboriginal dancing what Riverdance has done for Irish dancing.

ing. A huge goal, but they are really determined. I wish them well.

- The Cairns Convention Centre itself, a remarkable facility, built to promote and develop exactly the kind of event we ran there.
- The weather. It was not perfect during the sessions, a bit windy and cloudy, which increased session attendance, but the Friday dawned perfectly. I'm guessing it was idyllic from then on.
- The company. What a delight to be able to welcome so many friends to our shores, and to repay some of the hospitality we have enjoyed in other parts of the world.

And much, much more, as they say in advertising! However the newsletter deadline is looming, so I will say no more. Gene Wester, newsletter editor and unofficial photographer, has offered to send his pictures so we can put them on the website; watch for those at the PESC'02 website www.pesc02.com.

Seeyaladermate!

Dean Patterson
General Chair PESC '02
University of South Carolina
Columbia, SC USA
patterson@ieee.org

[Editor's note: The multi-syllable greeting and closing were introduced by the General Chair at PESC'02 as humorous tutorials to explain Aussie jargon to foreigners.]

Photos from PESC® 2002, Cairns, Australia



TOP Conference Chair Patterson (left) presents Certificates to new IEEE Fellows Hefner and Habetler; **BOTTOM** Plenary session authors coordinate at speakers' breakfast; **FAR LEFT** Aboriginal demonstration of didgeridoo

Society Awards

from page 3

digital RF generation and amplification to create modulated RF signal using a switching amplifier. He has been the technical lead in Motorola's Digital Switching Audio Amplifier program. He has 12 issued (including two related to his thesis) and 11 pending US patents. He has been Power Conversion and Management Chair for Motorola's Radio Architecture Steering Committee. He has served as reviewer for IEEE Transactions on Power Electronics, PESC, and the Midwest Symposium on Circuits and Systems. He is a member of Sigma Xi, Eta Kappa Nu, the Audio Engineering Society, and is a senior IEEE member.

PELS Transactions Prize Paper Awards

Each year the Editor and Associate Editors of the IEEE Transactions on Power Electronics select for recognition the three papers deemed best among those that were published in the Transactions during the preceding calendar year. In addition to a certificate presented to each author, an award of \$300 is shared equally among the paper's authors.

The following papers from the 2001 Transactions on Power Electronics were recognized at the annual Awards Banquet held June 27 during the 2002 Power Electronics Specialists Conference in Cairns, Australia.

"Theoretical and Experimental Investigation of the Fast- and Slow-Scale Instabilities of a DC-DC Converter"

The authors are Sudip K. Mazumder, Ali H. Nayfeh, and Dushan Boroyevich, all at Virginia Polytechnic Institute and State University, Blacksburg, VA, USA.

"Ultrahigh Frequency DC-to-DC Converters Using GaAs Power Switches"

The authors are Sami Ajram, presently at ATMEL, Rousset, France; and Georges Salmer, Université des Sciences et Technologies de Lille, Villeneuve d'Ascq, France.

"A Family of PFC Voltage Regulator Configurations with Reduced Redundant Power Processing"

The authors are Chi K. Tse, Martin H. L. Chow, and Martin K. H. Cheung, all at Hong Kong Polytechnic University, Hong Kong, China.

PELS Best Chapter Award

The German Joint IAS/IES/PELS Chapter received the 2002 PELS Best Chapter Award for its activities during 2001. This award, established in 2000 to recognize excellent service by a PELS Chapter to its

members and to the power electronics community, was presented on June 27 at the Awards Banquet held during the 2002 Power Electronics Specialists Conference in Cairns, Australia. The award consists of a certificate that includes the names of the Chapter chair, secretary and treasurer, and a monetary award of \$1,500. The Chapter may use the monetary award to support its activities, including expenses for a Chapter representative to attend the Awards Ceremony.

The 258 regular and 48 student members are well balanced between industry and academia. They planned and conducted three meetings that, because of the large number of participants, were comparable to workshops or small conferences. These meetings were held at Lenze GmbH, Hameln (March 2001); Technische Universität Ilmenau (June 2001); and Technische Universität, Braunschweig (November 2001). Attendance at these meetings was approximately 70, 56, and 105 persons respectively. The first two meetings included three lectures; the third meeting included five lectures and a roundtable discussion with six moderators. Lecturers came not only from Germany, but also from countries such as Hungary, Switzerland, Thailand, and the United States. Lecture topics included drives, inverters, control methods, motion control and power-electronics devices. The chapter plans to continue the practice of holding three well-organized and well-attended meetings each year. The chapter will also take part in organizing PESC® 2004 in Aachen, Germany.

The technical meetings start with social events such as guided tours and an evening get-together on the day before the technical sessions. Technical visits are sometimes added. These events have become an important addition to the technical activities. The German Joint Chapter recommends that other chapters consider similar programs if they do not already have them.

Activities planned for 2002 include adding PES to the joint chapter and establishing a European network for interchapter cooperation. Meetings are planned to establish joint research activities between industry and universities.

IEEE Fellow Grade Presentations

The eight PELS members elected to IEEE Fellow Grade effective 1 January 2002 were listed with their citations in the Janu-

ary and May issues of this Newsletter. Tom Habetler, Georgia Institute of Technology, Atlanta GA and Allen Hefner, National Institute of Standards and Technology, Gaithersburg, MD elected to receive their Fellow Grade Certificates at the Awards Banquet held during the 2002 Power Electronics Specialists Conference in Cairns, Australia.

Nominations for 2003 Awards

The Power Electronics Society Awards Committee urges members of the Society to participate in the selection of awardees by nominating qualified candidates for the Newell, Distinguished Service and Bass Awards. Nomination Forms will be published in the October 2002 issue of the Newsletter of the Society. The forms will also be available on the Society's Web Site, "www.pels.org", beginning in July 2002. Nominations will be due early in 2003, so the Committee recommends that they be prepared and submitted before the December holidays.

Christopher O. Riddleberger
Awards Chair
c.riddleberger@ieee.org

2003 Call for Engineering Program Evaluators

The IEEE Educational Activities Board (EAB) seeks qualified professionals from industry, government and academic sectors to serve as Program Evaluators to assist in accrediting engineering programs at USA colleges for the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology, Inc (ABET). Service as a program evaluator provides the opportunity for members of the profession to contribute to the achievement of high-quality educational standards of engineering programs.

The IEEE EAB seeks evaluator candidates who are qualified professionals (see qualifications at <http://www.ieee.org/organizations/eab/apc/ceaa/eacinfo.htm>), especially from industry, who are willing to serve IEEE and ABET for up to five years. Participation in the accreditation process by talented industrial professionals will ensure that the requirements of industry are addressed. Employer sponsorship and support is crucial for the recruitment of industrial program evaluator candidates.

IEEE evaluator candidates are needed for the following programs: Biomedical Engineering, Computer Engineering, Electrical Engineering, and Software Engineering.

Continued on page 9

Call for Evaluators from page 8

Before participating in accreditation visits, selected IEEE evaluator candidates are required to attend a one-day Evaluator Education Workshop sponsored either by IEEE or, with prior IEEE approval, by another ABET participating society (see http://www.abet.org/prg_evaluator.html for details). Selected IEEE evaluators, or their employers, are responsible for travel and lodging expenses. Expenses for the IEEE workshop itself, including all materials, breakfast, lunch and two coffee breaks are covered by IEEE. At least two IEEE workshops will be scheduled during 2003.

After attending an Evaluator Education Workshop, evaluators may participate in accreditation visits. During their term of appointment, evaluators usually participate in one accreditation evaluation visit per year. Visits are scheduled during the fall and are of two or three days duration. Expenses related to accreditation visits are reimbursed by ABET.

Applications are due to the IEEE Accreditation Administrator by 31 October 2002 for the 2003-2004 academic year. Accepted or declined notification will be sent to applicants by 1 March 2003.

Qualified individuals are invited to apply. Nominations of qualified candidates are encouraged also. Nomination and Application forms are available at <http://www.ieee.org/organizations/eab/apc/ceaa/eacinfo.htm>. To submit nominations and applications or request information contact:

Accreditation Administrator
Educational Activities
IEEE Operations Center
445 Hoes Lane - PO Box 1331
Piscataway NJ 08855
Mailto:eab-accred@ieee.org
Tel: +1 732 562 5484

Education PWM Report from pg 5

ture our courses from a top-down approach.

This PWM session was all about sharing ideas, sharing resources, sharing contacts, and sharing experiences. Everyone had the opportunity to take away a new idea to try out, or the name of a new contact, or a new source of teaching equipment.

Richard Duke
Chair, PESC'02 PWM Education
Session
University of Canterbury, New Zealand



PELS AdCom Meeting Highlights

The Administrative Committee of the Power Electronics Society convened in Cairns, Australia, for an all-day meeting June 28, the day following the close of the 33rd annual Power Electronics Specialists Conference (PESC'02) held in Cairns. Here is a summary of motions and action items from that meeting.

Motions

- Appointed Daan van Wyk as editor of the PELS Transactions, succeeding Arthur Kelley.
- Appointed Phil Krein as editor of the new PELS Power Electronics Letters.
- Renamed the office of PELS Administrator as Executive Director.
- Increased Society membership dues by \$2 to \$12 for 2003.
- Approved advance funding of \$8,000 for the 2003 Symposium on Diagnostics for Electric Machines, Power Electronics and Drives.
- Authorized van Wyk to review Transactions associate editors and Tom Habetler to write each AE announcing the new editor, thanking the reviewer for past services and noting the individual may or may not be asked to remain as an AE.
- Agreed to recognize associate editors with a certificate and gift at the awards luncheon at PESC'03 and to invite outgoing editor Kelley as a special guest in recognition of his contributions.
- Endorsed the objective of a merger of the IEMDC and APEC conferences, and for a merger between PESC and the IAS Annual Meeting.

Action Items

- Ron Harley will gather information annually on PELS publications and Bob Myers will do the same on conferences to provide an archive for future Society Reviews required each year by IEEE.
- Myers will contact IEEE for costs in converting 1986 and 1987 transactions to electronic format.
- Myers will advise TAB Finance on increased dues for 2003, and Steve Leeb will adjust the 2003 budget.
- The Meetings Committee will study the idea of a Society fee to be applied to registration for all PELS conferences and will develop a policy dealing with one-day registrations.
- The Meetings Committee will develop a procedure and compatibility guideline for

electronic presentations at PELS conferences.

- The Awards Committee will update the Society Distinguished Lecturer Program.
- Grahame Holmes will advise Harley if he can accept an appointment as Society webmaster.
- Leeb will contact the IEEE Foundation regarding endowments for programs, such as expenses for specific individuals invited to Society meetings and conferences.
- Tom Habetler will contact John Kassakian regarding establishment of a conference on automotive and transportation electronics.
- Jerry Hudgins and Rik DeDoncker will develop strategy for approaching the Industry Applications Society on a possible merger of PESC and the IAS Annual Meeting.
- Harley will gather data on a potential course on writing and reviewing technical papers.
- Harley and Daan van Wyk will coordinate reviewer lists and technical committee membership to create possible special issues of the PELS transactions and for recruiting new associate editors.
- Habetler will appoint a successor to van Wyk as chair of the Society Fellows Evaluation Committee.

Bob Myers
PELS Executive Director
bob.myers@ieee.org

Call for AdCom Nominations

The Power Electronics Society is governed by an Administrative Committee (AdCom) of 18 elected society Members-At-Large, the President and two Vice-Presidents, Treasurer, and chairs of our technical and operating committees. Nominations are prepared by a separate Nomination Committee, and are also open by petition to the entire society. Any member wishing to submit a nomination for Member-At-Large should prepare a petition signed by a minimum of 25 society members (excluding student members). The deadline for receipt of petitions is September 9, 2002. Petitions should be delivered to Bob Myers, the Society Executive Director, at 799 N. Beverly Glen, Los Angeles, CA 90077 USA.

Philip Krein
PELS Nominations Chair
p.krein@ieee.org

Announcement and Call for Papers

2003 INTERNATIONAL ELECTRIC MACHINES AND DRIVES CONFERENCE

IEMDC'03

June 1 – 4, 2003

**Monona Terrace Convention Center
Madison, Wisconsin USA**

<http://www.iemdc03.org>



Sponsored By:

IEEE Industry Applications Society
IEEE Industrial Electronics Society
IEEE Power Electronics Society
IEEE Power Engineering Society

The IEEE International Electric Machines and Drives Conference provides an international forum for sharing of experience, new ideas, and developments in design, analysis, new materials utilization and optimization techniques for electrical machines, machine drive systems and drive components. The scope includes all varieties and sizes of electric machinery. Also included are practical applications, operations, maintenance, and the development and harmonization of standards for machines and drive systems. The IEMDC is a gathering for users, designers, and analysts of electric machines and drives, and related power electronics and controls.

In addition to papers of general applicability, IEMDC '03 will feature special sessions on four technical tracks:

- Automotive Applications of Electric Drives and Controls
- Aerospace Applications of Electric Drives and Controls
- Large Turbogenerator Maintenance and Life Expectancy
- Office Automation Applications of Electric Drives

These tracks will provide a separate focus on the technical subjects of this conference, as used and/or proposed for use in the target industry. Papers for each respective track will be reviewed by an industry-specific panel, and special sessions at the conference will be devoted to these papers.

Author Deadlines

Submission of Abstracts and Digests	October 21, 2002
Notification of Acceptance	January 31, 2003
Submission of Final Papers	March 31, 2003

To be considered for the conference program, authors should submit:

1. A one page abstract of 150 words or less with fully headed paper title, names of all authors, area of interest, and name and addresses of the corresponding author, including phone, fax, and e-mail address. All communication with the corresponding author will be conducted via e-mail and the conference web site. Papers will be presented in either lecture or poster format. If you have a preference for either format for presentation of your paper, please indicate that on this page. The final decision on presentation method however will be up to the program committee.
2. A digest of **up to five pages** on standard letter/A4 paper size, including key equations, figures, tables, and references headed by paper title only. The digest must state the purpose of the work, manner in which it advances previous work, and goals achieved and their significance in sufficient detail for undergoing a review process. The digest should not include the names and addresses of the authors.

Digests and abstracts will be submitted electronically in Adobe Acrobat Portable Document Format (.pdf). To facilitate the review process, please submit the abstract and digest as separate files. Instructions to submit abstracts and digests will be posted on the web site by July 30, 2002.

Conference Chair

Professor Thomas A. Lipo
University of Wisconsin
1415 Engineering Dr.
Madison, WI 53706
lipo@engr.wisc.edu

Program Co-Chair

Professor Thomas Jahns
University of Wisconsin
1415 Engineering Dr.
Madison, WI 53706
jahns@engr.wisc.edu

Program Co-Chair

Brian Welchko
University of Wisconsin
1415 Engineering Dr.
Madison, WI 53706
bwelchko@ieee.org

Finance Chair

Professor Robert Lorenz
University of Wisconsin
1513 Engineering Dr.
Madison, WI 53706
lorenz@engr.wisc.edu

Candidates for IEEE Division II Director

There are three candidates for Division II Director in the fall election of IEEE officers and directors. Division II is comprised of Industry Applications Society, Power Electronics Society, Instrumentation and Measurement Society, and Dielectrics and Electrical Insulation Society.

The three candidates for Division II are Phil Krein, former President of Power Electronics Society; Barry Oakes, former President of Instrumentation and Measurement Society; and Fred Trutt, former President of Industry Applications Society.

Please remember to vote. The Division II Director represents the four societies on the IEEE Board of Directors and is the societies' direct voice on the Board. Each candidate's statement and photograph is provided below in alphabetical order.



Philip T. Krein

Philip Krein received the Ph.D. from the University of Illinois. He worked in industry, then joined the University of Illinois faculty. He published a textbook, *Elements of Power Electronics*, was a senior Fulbright Scholar at the University of Surrey, UK, and has worked with undergraduate teams on energy-based and hybrid car projects. Currently he is Director of the Grainger Center for Electric Machinery and Electromechanics. Dr. Krein holds seven patents, and is a Registered Professional Engineer. He is Past President of the Power Electronics Society, and is a member of the Electrostatic Processes Committee and other committees in the Industry Applications Society.

The revolutionary change that governed the twentieth century is accelerating, and we must position ourselves as central players in fast-changing basic technologies. Strong synergy exists among the four societies in Division II, which covers the fundamental infrastructure of electrical engineering and its relationship to industrial development. We can enhance our excellence with joint activities and publications, through close exchange, and with discussion of best practices. There is a vast range of new technology that should be championed by our Division: sensors and microsensors, battery advances and fuel cells, transportation electronics and hybrid vehicles, industrial plasma processes, to name a few. The Division Director can encourage the societies, individually and collectively, to provide IEEE forums for emerging technologies. We have the chance to lead international activities such as the Future Energy Challenge that will share the excitement in our areas with students and young engineers.



J. Barry Oakes

J. Barry Oakes spent his career as a working engineer, engineering supervisor, and manager. His experience includes electronic circuit and system design in surface-to-air missiles, geodetic and navigation satellites, biomedical and clinical instrumentation, oceanographic sensors, and special purpose radars.

Mr. Oakes' past IEEE activities include President of the IEEE Instrumentation and Measurement Society; Division II Director; Vice President, Educational Activities; and work on many other committees and boards. He is an IEEE Fellow and a member of Sigma Xi.

Based on my career and IEEE experience, I can contribute strongly in several areas of interest to IEEE members. If elected, I will work vigorously to:

1. Support the introduction of electronic publishing throughout the IEEE, and to assure that the rewards of this effort are made available to all IEEE members in a cost effective way. Funding problems with this effort presently exist which are grave threats to the financial viability of all IEEE Societies, and I will work to make Society concerns abundantly clear to the IEEE BoD.

2. Assure that new technologies in our profession are recognized promptly and addressed in current or new IEEE Transactions. These rapidly emerging areas deserve prompt coverage in our publications and conferences.

3. Establish an on-line, searchable guide to all IEEE lifelong learning programs. Most major IEEE Boards and conferences have efforts in continuing education, and current information on these courses will improve their availability to all our members.



Frederick C. Trutt

Over 30 years of service to the IEEE and the engineering profession have provided me with some insight into IEEE Chapter, Society and TAB activities. Based upon this experience, my current assessment is that the IEEE leadership, staff, and its many volunteers are all working to provide increasingly improved, comprehensive, and global services to the membership and to our profession. I support this concept and believe that the IEEE should continue to develop and streamline its leadership role in our electronically oriented and global society.

There are areas of concern however. In an efficient and well-organized organization, difficult choices and decisions are needed in order to manage business activities within the constraint of limited financial resources. Budgets that balance income and expenses without significant reliance on soft-money income, increased membership contributions, or taxes levied on technical societies should be constructed. In order to achieve this goal while maintaining appropriate services to members, real measures for reducing expenses and improving efficiency must be evaluated and implemented.

If elected as your representative, my plan of service would be to:

1. Establish avenues for dialogue with individual members and society representatives in order to expand my knowledge of our expectations and concerns.

2. Armed with this information, participate as an active and constructive member of the IEEE Board of Directors in order to work towards the realization of our objectives.

Meetings of Interest to PELS Members

EPE-PEMC 2002, the 10th International Power Electronics and Motion Control Conference, will be held September 9 – 11, 2002 in Cavtat and Dubrovnik, CROATIA. For additional information visit <http://www.fer.hr/epe-pemc2002>.

INTELEC® 2002, the 24th International Telecommunications Energy Conference, will be September 29 – October 3, 2002 in Montréal, Canada. The IEEE Power Electronics Society is the sole sponsor in even years, and is a technical co-sponsor in odd years. See the announcement in this *Newsletter* or visit <http://www.intelec.org> for additional information.

2002 IEEE Industry Applications Soc. Annual Meeting is scheduled October 13 – 18, 2002, in Pittsburgh, Pennsylvania USA. Further information is available at <http://www.ias2002.org/>.

CIEP 2002, the 8th IEEE International Power Electronics Congress, will be held October 20 – 24 in Guadalajara, Mexico. The IEEE Power Electronics Society is a technical co-sponsor. Visit <http://ciep2002.iteso.mx> for details.

WPET 2002, the 7th Biennial Workshop on Power Electronics in Transportation, takes place October 24 – 25 in Detroit, Michigan, USA. WPET is

co-sponsored by the IEEE Power Electronics Society and the IEEE Southeast Michigan Section. For additional information visit <http://www.engin.umd.umich.edu/ECE/~WPET>.

IECON'02, the 28th Annual Conference of the IEEE Industrial Electronics Society, is planned for November 5 – 8, 2002 in Sevilla, Spain. IECON 02 is sponsored by the IEEE Industrial Electronics Society. For further information see <http://iecon02.us.es>.

APEC® 2003, the 18th Annual IEEE Applied Power Electronics Conference, sponsored by the IEEE Power Electronics Society, the IEEE Industry Applications Society, and the Power Sources Manufacturers Association, will be held February 9 – 12, 2003 at the Fontainebleau Hotel, Miami Beach, Florida, USA. Visit <http://www.apec-conf.org> for current information.

IEMDC 2003, the IEEE International Electric Machines and Drives Conference, is scheduled for June 1 – 4, 2003 in Madison, Wisconsin. The IEEE Industrial Applications, Industrial Electronics, Power Electronics, and Power Engineering Societies are technical co-sponsors. The deadline for digests is October 21, 2002. For additional information see the Call for Papers in

this *Newsletter* or visit <http://www.iemdc03.org>.

PESC® 2003, the 34th Annual IEEE Power Electronics Specialists Conference, will be held June 15 – 19, 2003 in Acapulco, Mexico. PESC is sponsored by the IEEE Power Electronics Society. The deadline for abstracts and digests is October 11, 2002. For additional information see the Call for Papers in this *Newsletter* or visit <http://www/pesc2003.org/>.

SDEMPED 2003, the 4th IEEE International Symposium on Diagnostics for Electric Machines, Power Electronics and Drives, takes place August 24 – 26, 2003 in Atlanta, Georgia USA. SDEMPED is sponsored by the IEEE Power Electronics Society. Digests and special session proposals are due December 1, 2002. The Call for Papers can be viewed at <http://www.dimie.uniovi.es/sdemped03.html>.

POWERCON 2002, the International Conference on Power System Technology, will be held October 13 – 17, 2002 in Kunming, China. It is sponsored by the IEEE Power Engineering Society and the Chinese Society for Electrical Engineering. Visit <http://www.epri.ac.cn/conference/PowerCon2002/index.html> for details.

The INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS, Inc.

445 Hoes Lane, P.O. Box 1331 • Piscataway, NJ 08855-1331, USA

Periodicals Postage
Paid at New York, NY
and at Additional
Mailing Offices

*Make your plans now
to attend*

INTELEC® 2002

**Montréal, Canada
Sep 29 – Oct 3, 2002**