



The President's Message

The 1998 Power Electronics Specialists Conference held in Fukuoka, Japan was a smashing success. Professors Tamotsu Ninomiya, Atsuo Kawamura, and the other



conference committee members provided the attendees an excellent technical program and a wonderful venue for the meeting. My personal thanks go to the conference committee for a smooth and well-planned week of technical programs and Japanese culture.

As a follow-up to the information in the last PELS Newsletter, Kevin Fellhoelter, PELS Vice President for Meetings, and I will be attending the Intersociety Meeting in San Diego on July 17, 1998. A continuation of the discussion concerning joint sponsorship of technical meetings, chapters development, and sharing of information will highlight the meeting. A full report of the meeting will be provided in the next edition of the Newsletter.

PELS AdCom Meeting

The AdCom meeting was held on May 17 in conjunction with the PESC '98. Elimination of the Society Secretary position and assignment of most of those duties to a Society Administrator, as well as formal approval of the Long Range Planning Committee as a standing committee of the PELS was reported. A draft of a survey instrument was reviewed by the AdCom. The survey was prepared by the Membership Chair, Dusan Borojevic, and will be used to gather information from members and nonmembers about the PELS and its services. Approval was given to the proposed preliminary Society budget for 1999. New members were added to the Nominations Committee. They are: Franco Profumo (3 years), Rene Spee (3 years), Katsuichi Yotsumototo (3 years), and Seth Sanders (2 years). Modifications to some of the Society awards, to cover conference registration at future meetings of PESC, was approved. This was to encourage Society award winners to attend the annual awards banquet held each year at PESC. Everyone is encouraged to nominate deserving engineers for Society awards, including

Continued on page 9

PESC '98 in Japan, A Brief Report

by Tamotsu Ninomiya, General Chair for PESC '98

The 1998 Power Electronics Specialists Conference was held in Fukuoka, Japan. This



city has been a cultural crossroad, particularly for visitors from the Asian continent for centuries, and now it is one of Japan's leading cities. The date of this

29th conference was shifted to May 17th through 22nd, one month earlier than usual, in order to avoid the rainy season in Japan. Fortunately, we had a fine weather during the entire conference. So approximately 600 attendees enjoyed their participating in technical sessions and many social functions. Here are the statistics numbers for this conference:

First, 520 digests were submitted from 38 countries and areas, and 14 topic chairs and 186 reviewers selected high-quality papers through a rigorous review process. Consequently, 326 papers were published in the Conference Record. These papers were orally presented at six parallel sessions during four days. Copies of the Conference Record are available from IEEE Operations Center. However, this year, a CD-ROM version was not prepared due to the difficulty anticipated in the advance budget.

Next, the number of regular registrations was 580, and the total number including accompanying persons was 620. The number of actual attendees was 597. These numbers have set new records over previous PESC meetings. Concerning the areas of the attendees, 50% are from Japan, 20% from other Asian countries, 15% from North and South America, and 15% from Europe and Africa. The success of the conference is owing to many good papers and many attendees.

Finally I appreciate much support from many industries, universities, public institutes, and volunteers. Special thanks are expressed to the Organizing Committee members for actually managing the conference for a long time and to the PELS AdCom members for their support.

(Ed. see photo spread, page 11)

Joachim Holtz Receives 22nd PELS Newell Award John Kassakian and Frede Blaaberg also Honored; Prize Paper Awards Announced

Dr. Joachim Holtz of the Technical University of Braunschweig, Germany, received the William E. Newell Power Electronics



Award at the Annual Awards Banquet held May 20 at the 1998 Power Electronics Specialists Conference in Fukuoka, Japan. The award has been presented annually since 1977 for outstanding achievement in the field of power electronics.

Joachim Holtz graduated from the Technical University Braunschweig, Germany, in 1967. He received his doctorate degree two years later from the same university. In 1969 he became Associate Professor and Head of the Control Engineering Laboratory at the Indian Institute of Technology in Madras,

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Tricks of the Trade

Here is a new column that will appear from time to time and will offer brief ideas for analysis, simulation, design, or experimental measurements for power converters. Phil Krein has agreed to serve as editor for "Tricks of the Trade" and leads off with our first trick. If you have an idea that you would like to contribute, please send e-mail to krein@ece.uiuc.edu.

Step functions, Signum functions, and If functions for converter waveforms

Contributed by P. T. Krein, University of Illinois at Urbana-Champaign

Most computer analysis packages and programs, including Mathcad®, Mathematica®, and some spreadsheets, have built-in functions that can make it easy to plot waveforms and generate data for Fourier analysis, filter design, or other purposes. One helpful basis for this process is to generate switching functions (0 if a switch is off, 1 if a switch is on), then combine these with source waveforms to produce output.

In our example, the *If* function will be used as a general case. This function is written

If(condition, result_if_true, result_if_false)
In the C language, an identical operation can be written with the *?:* conditional operator.

The signum function *sgn(x)* (which gives the sign of the argument, or 0 if the argument is zero) can be represented as

$$\text{sgn}(x) = \text{If}(x > 0, 1, -1) * \text{If}(x = 0, 0, 1)$$

with the *If* function. The Heaviside step function *u(x)* can be represented as

$$u(x) = \text{If}(x > 0, 1, 0)$$

with the *If* function. A switching function *q* with frequency *f*, phase *p*, and duty ratio *d* can be written

$$q(t, f, p, d) = \text{If}(\cos(2 * \pi * f * t - p) - \cos(d * \pi) > 0, 1, 0)$$

or directly with *u(x)* as

$$q(t, f, p, d) = u(\cos(2 * \pi * f * t - p) - \cos(d * \pi))$$

with this method.

Here is a way to provide graphical output for a half-bridge matrix ac-ac converter switching at 120 Hz with a 60-Hz three-phase input:

$$v_a(t) = \cos(2 * \pi * 60 * t)$$

$$v_b(t) = \cos(2 * \pi * 60 * t - 2 * \pi / 3)$$

$$v_c(t) = \cos(2 * \pi * 60 * t + 2 * \pi / 3)$$

$$q_a(t) = q(t, 120, 0, 1/3)$$

$$q_b(t) = q(t, 120, 2 * \pi / 3, 1/3)$$

$$q_c(t) = q(t, 120, -2 * \pi / 3, 1/3)$$

$$v_{out}(t) = v_a(t) * q_a(t) + v_b(t) * q_b(t) + v_c(t) * q_c(t)$$

The result is the piecewise-sinusoidal waveform expected for this type of converter. You can probably see how to extend the ideas to a full bridge or to a rectifier or inverter system. For example, a voltage-sourced inverter that operates based on phase displacement has an output waveform given by

$$v_{out}(t) = v_{in} * (q(t, f, -p, 1/2) + q(t, f, +p, 1/2) - 1)$$

where *p* is the phase separation between the two control signals and *v_{in}* is a dc source value.

Some packages (Mathcad, for example) can even integrate expressions that include the *If* function for computation of fundamental values and harmonics. The fundamental amplitude, for instance (in Mathematica notation), is given by

$$\text{amp} = 2 * f * \text{Integrate}[v_{out}[t] * \text{Cos}[2 * \pi * f * t], \{t, 0, 1/f\}]$$

What happens if *sgn(x)* is the only available form, as tends to be true in many conventional computer languages? Heaviside's step function can be written

$$u(x) = (\text{sgn}(x) + 1) / 2$$

and this supports the direct *u(x)* switching function representation given above. The switching function *If* or *u(x)* representations are helpful tools for a variety of analyses.

Call for Nominations for AdCom Members

by Thomas M. Jahns, Chair
PELS Nominations Committee

Each year, six of the eighteen elected members-at-large of the Administrative Committee (AdCom) of the IEEE Power Electronics Society are rotated off the AdCom. The Nominations Committee is now accepting nominations for six members-at-large of the AdCom, each to serve a



term of three year starting January 1, 1999. A nomination petition signed by a minimum of 25 Society members, including Students and Affiliates, should be submitted no later than August 25, 1998, to the Chair of the Nominations Committee, Dr. Thomas M. Jahns, Massachusetts Institute of Technology, Room 10-171, Cambridge, MA 02139, USA.

In addition to nominations by petition, the Chair of the Nominations Committee solicits additional nominations from all members of the existing AdCom by letter. From the nominations received, the Nominations Committee will prepare a list of at least three names for every two vacancies among the members-at-large. The election will take place prior to the October 4, 1998, AdCom Meeting in the form of a written ballot by AdCom members.

Nominations by petition from the Society membership provide an opportunity for members of the Power Electronics Society to assist in the identification of talented persons who are willing and able to take an active part in this important volunteer activity of the Society.

PESC® 2004 Conference Site Proposals Solicited

The PELS PESC Steering Committee is soliciting proposals for the location of PESC 2004. The conference traditionally rotates between North America, Europe, and the Pacific rim. PESC 2004 is slated to be held in Europe/Africa (IEEE region 8).

Proposals should be submitted to the PESC Steering Committee Chair, Tom Habetler, prior to April 1, 1999. The proposals should contain information concerning the proposed location and conference advocate/organizers. Detailed information should be included concerning the proposed conference facility. This includes number, size and cost of meeting rooms, and a description and approximate cost of lodging rooms. Other information concerning the local area and travel is also useful.

The proposals will be discussed and reviewed at the Steering Committee meeting to be held at PESC '99. Each site advocate will have an opportunity to summarize their proposal to the committee. Closed discussions will then be held concerning the proposals, and any open issues

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IEEE Power Electronics Society

Officers

Jerry L. Hudgins, President

Philip T. Krein, V. P. for Operations

Kevin Fellhoelter, V. P. for Meetings

V. Joseph Thottuvellil, Secretary

Richard Bass, Treasurer

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News items should be sent to: Harry A. Owen, Jr., Editor, PELS Newsletter, 69 Forest at Duke Drive, Durham, NC 27705, USA; TEL: +1-919-489-2934; FAX: +1-919-660-5293; e-mail: hao@ee.duke.edu. Deadlines for copy are March 15, June 15, September 15 and December 15. Submission of items by e-mail in plain-text format is preferred. Plain-text (straight ASCII) submissions on diskettes of either size are welcome. A backup printout should be mailed with a diskette. 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 high-quality hard copy.

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Tutorials Added to INTELEC® '98 Schedule

Four full-day tutorials have been added to the INTELEC '98 program, on Sunday, October 4, starting at 9:00 am. The tutorials will be given by internationally recognized authorities in their fields.

Fundamentals of Broadband Power Nodes, Installation and Maintenance: provides an overview of a broadband power node (BPN) for broadband applications, including a detailed description and analysis of the function of the major BPN components, installation, site selection, site preparation, grounding principles, preventive maintenance and customer acceptance check list. Combines theory with practical field examples. The tutorial will be given by A. Ronald Sanders, President of RLS, who is a 27 year veteran of the telecommunications and cable industry with extensive management, power maintenance and design experience. Tutorial level: Basic to intermediate.

Grounding and Bonding for Telecommunications: covers topics ranging from earth-methods to grounding the electrical power service-equipment to advanced concepts, such as electronic equipment grounding topologies for telecommunications, local area networks and distributed computing. The tutorial will be given by William Bush, President of TeleCOMputer Reliability Services, who brings 30 years experience in the telecommunications industry, including participation in several national standards and practices organizations dealing with grounding, bonding, power quality and electromagnetic and surge protection. Tutorial Level: Basic to intermediate.

VRLA Batteries in Telecom and UPS Applications: addresses the history, principles of operation, standby applications and design of VRLA batteries. Topics covered range from basic battery chemistry and design considerations to performance characteristics and field applications to field maintenance and testing. This is an intermediate-level tutorial, for engineers, designers and technologists associated with UPS, Telecom and CATV applications. Dr. Bob Nelson, an independent consultant in VRLA technology, brings 20 years of diverse experience in the lead-acid battery industry. Tutorial Level: Intermediate.

Understanding Telephone Power Systems: provides a detailed description of a telephone power system which includes ac distribution, rectifiers, batteries, controllers and monitoring systems, primary and secondary dc distribution, inverters, converters, ac generator sets and ringers. Common alarm and protection typically required in a power system will be discussed as will grounding, product life and reliability, circuit breaker and fuse characteristics; cable insulation and flammability. The tutorial concludes with a discussion of trends in power



INTELEC '98



INTERNATIONAL
TELECOMMUNICATIONS ENERGY
CONFERENCE

Hyatt Regency Embarcadero
San Francisco, California
Sunday, October 4, 1998 through
Thursday, October 8, 1998



ANNOUNCEMENT AND CALL FOR PAPERS

The 20th International Telecommunications Energy Conference (INTELEC®) will be held at the Hyatt Regency Embarcadero in San Francisco, CA from Sunday, October 4, 1998, through Thursday, October 8, 1998.

INTELEC is an international forum for the exchange of information on energy and power for communications systems. The conference provides an opportunity for designers, manufacturers, distributors and users to discuss a wide variety of topics related to power systems, components, and energy storage technologies.

The theme for INTELEC '98 is **Powering the Integrated Global Communication Networks of the Twenty First Century**. This theme will be set by both the keynote and the plenary speakers, who will discuss the changing power needs of our industry as we move into the next century. Over 100 technical papers, covering virtually all aspects of telecommunications power will be presented. Several workshops, tutorials and an exhibition of power equipment used in communications networks are also planned. Over 800 representatives from three dozen countries are expected to attend.

SCOPE OF CONFERENCE

Topics for the technical papers to be presented include, but are not limited to, the following:

- Integrating the Diverse Power Requirements of Cable, Wireless and the Internet
- Batteries - energy storage systems and devices
- Power for Cellular and Personal Communications Systems (PCS)
- Cable System Operation, Administration and Maintenance
- Power Challenges of High-Power Multimedia Networks
- Power for Cable TV
- New Technology Power Generation and Energy Storage Systems
- DC Power Plants - rectifiers, distribution, computer supervision, remote monitoring and control
- Power System Architectures
- Flywheel Energy Storage Systems
- DC/DC Converters - topologies, design and simulation
- AC Power Supplies - Inverters, UPS, power supplies for computer systems and terminals
- Prime Power Systems - engine-alternators, fuel cells, solar and wind systems
- Building and Environmental System Design - energy conservation techniques
- Physical and Thermal Design - energy-efficient design
- Electromagnetic Compatibility - EMI, ESD, EMP
- Grounding and Bonding of equipment, systems and buildings
- Standards and Specifications

You are cordially invited to propose suitable topics for nonoverlapping workshops on subjects of special interest.

ABSTRACTS AND MANUSCRIPTS

An abstract that accurately reflects the content of each proposed technical paper must be received by the Program Committee **not later than March 1, 1998**. The abstract should not be shorter than 250 words and no longer than 500 words. It must include all information considered necessary by the authors to demonstrate the technical merit of the paper. Abstracts can be sent via Fax, E-Mail or regular mail. Please direct all abstracts to:

NJ Services Phone: +1 (973) 538-1077
INTELEC '98 Fax: +1 (973) 326-8943
14 Ridgedale Ave., Suite 125 Mail: 7354.416@compuserve.com
Cedar Knolls, NJ 07927 USA

Manuscripts of accepted papers will be included in the Conference Proceedings which will be distributed at the conference. The length of each manuscript must not exceed eight single spaced, double written pages, tables and figures included. Abstracts, manuscripts, and oral presentations will be in English. Detailed instructions on format will be mailed to those authors whose abstracts have been accepted. Where multiple authors are involved, please indicate to which author the mail should be addressed. **Electronic versions on diskette in Microsoft Word, Word Perfect or a compatible word processing program are preferred, however camera-ready manuscripts will also be accepted. The accepted papers are due no later than July 5, 1998.**

EXHIBITS

The technical sessions will be complemented by exhibits featuring power equipment and related products. Companies wishing to reserve exhibit space are invited to contact:

Charles Mc Manus Phone: +1 (610) 208-1981
YUASA/Exide Fax: +1 (610) 372-8613
Post Office Box 14145 E-Mail: cmcmanus@aol.com
2566 Bernville Road
Reading, PA 16612

for telecom applications. Bob Kakalec, a consultant who has worked in telephone power since 1961, has published twenty-two articles, presented more than seventy nationwide seminars, and holds eighteen patents. Tutorial Level: Basic to intermediate.

The International Telecommunications Energy Conference, INTELEC '98 will be held October 4-8th, 1998 at the Hyatt Regency Embarcadero, San Francisco, California, USA.

INTELEC is the only global conference focused on requirements and solutions for providing reliable power for the telecommunications industry. For the latest information on the conference check the website at: <http://www.pels.org/intelec98/html> or contact: NJ Services- Intelec 98, TEL: 1+973-538-1077, FAX: 1+973-326-8943, 14 Ridgedale Avenue, Cedar Knolls, NJ 07927 USA, email: 73544.416@compuserve.com.



CALL FOR PAPERS AND SEMINARS

14th Annual Applied Power Electronics Conference and Exposition March 14–18, 1999 • Hyatt Regency Dallas

The Fourteenth Annual Applied Power Electronics Conference and Exposition (APEC 99) will address the application of new components and circuits, design-oriented analysis techniques, and current trends in the design and manufacture of power electronic products and systems.

Conference Highlights

- Full technical program of presented papers.
- Professional Education Seminars on important topics for power electronics professionals including anyone involved in marketing, quality and manufacturing.
- Exposition featuring component, equipment and service leaders in the power electronics industry.

Participation is solicited in all areas of power electronics, including those listed below. Suggestions for other related topics are welcomed and encouraged.

- | | | |
|-----------------------------------|---|--------------------------------------|
| • DC-DC Converters | • ICs For Power Electronics | • Market Analysis & Strategies |
| • AC-DC Power Supplies | • Design And Analysis Of Magnetic Devices | • Product & Technology Roadmaps |
| • Inverters & Cycloconverters | • New Developments in Capacitors | • The Voice Of The Customer |
| • Soft Switching Techniques | • High Density Packaging | • Identifying New & Emerging Markets |
| • Lamp Ballasts | • Thermal Management | • Benchmarking Results |
| • Adjustable Speed Drives | • Distributed Power Systems | • Quality Programs And Data |
| • Power Factor Correction | • Uninterruptible Power Systems | • JIT & Material Management |
| • Design For High Efficiency | • Battery Systems | • Vendor Qualification |
| • High Frequency Design | • Electric Traction Systems | • Manufacturing Processes |
| • Modeling And Analysis | • Automotive Applications | • Design For Manufacturability |
| • Control Of Converters & Systems | • Protection Of Converters & Systems | • Technology Transfer |
| • Simulation Tools & Techniques | • Preventing & Controlling EMI | • Standardizing Specifications |
| • CAD/CAE Tools & Techniques | | • Regulatory Requirements |
| • Power Semiconductors | | |

Deadline for Submission of Abstract and Digest is August 14, 1998.

Notification that a paper was accepted or declined will be mailed no later than October 5, 1998. Manuscripts in final camera ready form will be due at the publishers no later than December 11, 1998.

Prospective authors are asked to submit a 50 word Abstract and a three to five page Digest of their planned presentation. Both the Abstract and Digest should be typed, double spaced on 8½" × 11" paper. The heading of the Abstract must include: Title of the presentation, Corresponding Author(s), Affiliation(s), Mailing address, and Daytime telephone and Fax number. The heading of the Digest should include the title only.

The Digest should clearly state: a) The purpose of the paper; b) The approach used; and c) The specific results. Inclusion of key figures, tables, and conclusions is encouraged.

Eight copies of all materials should be mailed to:

APEC 99
2000 L Street, N.W., Suite 710, Washington, D.C. 20036

For Information on Exhibiting at the Exposition,

Call (202) 973-8664 or FAX (202) 331-0111

E-mail: apec@courtesyassoc.com

Web site: www.apec-conf.org

APEC is sponsored by the IEEE Power Electronics and Industry Applications Societies and the Power Sources Manufacturers Association

Conference Announcement and Call for Papers



CHARLESTON, SOUTH CAROLINA USA ~ JUNE 27 - JULY 1, 1999

The 1999 Power Electronics Specialists Conference (PESC), sponsored by the IEEE Power Electronics Society, will be held at the Charleston Place Orient-Express Hotel, Charleston, South Carolina, USA, June 27-July 1, 1999.

PESC is one of the major annual conferences of the IEEE Power Electronics Society. It provides a forum for international specialists in power electronics to present and discuss papers on forward-looking topics in this fast-evolving field. PESC'99 solicits original work in all areas of power electronics. To facilitate the review process, the following topic categories have been created:

1. Dc-to-dc converters and distributed dc power supply systems,
2. Rectifiers, inverters, and other ac-to-dc and dc-to-ac converters for power supply and UPS applications,
3. Motor drives and motion control,
4. Automotive, aerospace, transportation, and utility applications of power electronics,
5. Power quality, electromagnetic compatibility (EMC) and electromagnetic interference (EMI) issues,
6. Discrete and integrated power semiconductor devices and modules,
7. Passive components including capacitors and magnetic devices,
8. Computer-aided modeling, analysis, design and synthesis of power electronic systems,
9. Control theory as applied to power electronic systems,
10. Packaging of power electronic systems.

To be considered for the technical program, submit the following materials on either 8.5 x 11 inch or size A-4 paper.

1. **Three copies of a one-page abstract.** The abstract page should show the paper title, topic number, author names and organization, and the mailing address, telephone, and fax numbers of the corresponding author. The text of the abstract should not exceed 50 words.
2. **Eight copies of a five-page double-spaced digest.** To ensure unbiased evaluation, the digest should be *separate* from the abstract and show the title but not the authors. The digest should outline the work to be presented, the objectives, and the goals achieved. Inclusion of key equations, figures, tables, and references is encouraged provided they fall within the five-page limit.

September 15, 1998: Deadline for submission of abstracts with digests.

January 15, 1999: Authors notified of acceptance.

April 1, 1999: Deadline for submission of electronic manuscript for CD-ROM proceedings, and camera-ready manuscript for the printed proceedings.

<p>Submit abstracts with digests to: Robert Myers IEEE PESC '99 3685 Motor Ave., Ste. 240 Los Angeles, CA 90034-5750 USA Tel: 310-287-1463 Fax: 310-287-1851 e-mail: bob.myers@ieecc.org</p>	<p>For program information contact: René Spée Maxwell Technologies Power Electronics Systems 8888 Balboa Avenue San Diego, CA 92123-1506 USA Tel: 619-576-7698 Fax: 619-576-7883 e-mail: spec@maxwell.com</p>	<p>For conference information contact: Jerry Hudgins Dept. of Electrical Engineering & Computer Engineering University of South Carolina Columbia, SC 29208 USA Tel: 803-777-5174 Fax: 803-777-8045 e-mail: hudgins@enr.sc.edu</p>
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PESC 1999 World Wide Web Site — <http://www.ece.sc.edu/pesc99/>

Abstracts and digests will be returned to the authors if they arrive after September 15, 1998 or if they do not adhere to the above guidelines. E-mail and Fax submissions will not be accepted. Papers are accepted for PESC '99 contingent on the agreement of at least one author to register and present the paper at the conference.

Notice of Changes in the Society Bylaws

A recent vote of the Power Electronics Society AdCom authorized amendments to the Society Bylaws. The amendments and changes that follow are published in the Society *Newsletter* for possible comment by PELS members. If there are no objections, the new Bylaws will be submitted to the IEEE Technical Activities as approved. The present wording in the Bylaws is shown in the left column. The wording proposed for the amendment is in the right column, with the new portion shown in *bold italic*.

Present Wording

3.3 Secretary and Treasurer

The Society Secretary and Treasurer shall be members of the AdCom.

5.2 Secretary and Treasurer

The Secretary and Treasurer are Officers of the Society and members of the AdCom with vote. The Secretary and Treasurer are appointed by the President elect with the concurrence of the AdCom.

5.5 Duties

5.5.4 Secretary

The Secretary shall be responsible for keeping the records of the Society, for maintaining a current roster of the AdCom (with voting privileges and telephone numbers), and for sending archival information to the TAB Secretary as required by the IEEE. The Secretary shall prepare and distribute reports, notices, or other documents with the advice and consent of the AdCom, designate in writing and have made known to all AdCom members the responsibilities and membership of all Committees.

5.5.5 Treasurer

The Treasurer shall be responsible for the financial control and records of the Society. The Treasurer shall prepare reports, budgets and other documents useful in maintaining the financial health of the Society. The Treasurer shall solicit from the Technical and Standing Committees and the editors, inputs for establishing the budget. The Treasurer shall chair the Finance Committee.

8.2.2 Without Quorum

If a duly-called meeting fails to reach a quorum of attendees, tentative actions may be taken which shall become effective upon subsequent ratification by mail by a majority of the voting members of the AdCom unless otherwise required in the Constitution. In this case the Secretary shall mail minutes of the meeting to each member of the AdCom. The document shall be clearly marked as requiring a return response from the voting AdCom members with a deadline of 30 days from the date of mailing of the document.

11. STANDING COMMITTEES

The Intersociety Liaison Committee shall be chaired by the Vice President for Operations and the Meetings Committee shall be chaired by the Vice-President for Meetings. The Chairperson of all other Standing Committees shall be appointed by the Society President, with the advice and consent of the AdCom. The Chairperson shall be an ex-officio member of the AdCom with vote. Committee Members shall be appointed with the consent of the AdCom on the recommendation of the Committee Chairperson.

11.3 Standing Committees

Examples of typical Standing Committees of the Society are Committees on:

- a. Academic Affairs
- b. Awards

Proposed Wording

3.3 Treasurer

The Society Treasurer shall be a member of the AdCom.

5.2 Treasure

The Treasurer is an Officer of the Society and member of the AdCom with vote. The Treasurer is appointed by the President elect with the concurrence of the AdCom

5.5 Duties

5.5.4 Administrator

The President of the Society may appoint a paid Administrator with the advice and consent of the AdCom. The Administrator provides administrative support to Society Officers, the AdCom, and other committees. The Administrator is an ex-officio member of AdCom without vote.

5.5.5 Treasurer

The Treasurer shall be responsible for the financial control and records of the Society. The Treasurer shall compile financial and budget data, analyze and make appropriate recommendations to the AdCom and other committees on such items as publication costs, meeting expenses, the total annual operation and long-term solvency of the Society. The Treasurer shall prepare reports, budgets and other documents useful in maintaining the financial health of the Society. The Treasurer shall solicit from the Technical and Standing Committees and the editors, inputs for establishing the budget. The Treasurer shall report to the AdCom on the financial status of the society.

8.2.2 Without Quorum

If a duly-called meeting fails to reach a quorum of attendees, tentative actions may be taken which shall become effective upon subsequent ratification by mail by a majority of the voting members of the AdCom unless otherwise required in the Constitution. In this case the *Administrator* shall mail minutes of the meeting to each member of the AdCom. The document shall be clearly marked as requiring a return response from the voting AdCom members with a deadline of 30 days from the date of mailing of the document.

11. STANDING COMMITTEES

The Long Range Planning Committee shall be chaired by the Senior Past President, the Intersociety Liaison Committee shall be chaired by the Vice President for Operations, and the Meetings Committee shall be chaired by the Vice-President for Meetings. The Chairperson of each Standing Committee shall be appointed by the Society President, with the advice and consent of the AdCom. Each Chairperson shall be an ex-officio member of the AdCom with vote. Committee Members shall be appointed with the consent of the AdCom on the recommendation of the Committee Chairperson.

11.3 Standing Committees

Present Wording, from page 6, left column

- c. Chapter Development
- d. Constitution and Bylaws
- e. Education Activities
- f. Fellows
- g. Finance
- h. History
- i. International Relations
- j. Intersociety Liaison
- k. Meetings
- l. Membership
- m. Nominations
- n. Publications
- o. Publicity
- p. Relations with TAB and other IEEE Boards and Committees
- q. Standards

11.4.7 Finance Committee

The functions of the Finance Committee will be to:

- a. Compile financial and budget data, analyze and make appropriate recommendations to the AdCom and other committees on such items as publication costs, meeting expenses, the total annual operation and long-term solvency of the Society;
- b. Act as consultant and functional supervisor to Treasurers of various meetings sponsored by the Society;
- c. Observe financial operations of the Society and take appropriate actions to ensure that money is spent or invested wisely and in the best interest of the Society; and
- d. Make periodic reports to the AdCom on the financial status of the Society.

11.4.8 History Committee

11.4.9 International Relations Committee

11.4.10 Intersociety Liaison Committee

11.4.7 History Committee

11.4.8 International Relations Committee

11.4.9 Intersociety Liaison Committee

11.4.10 Long Range Planning Committee

11.4.11 Meetings Committee

The functions of the Meetings Committee will be to:

- a. Develop policies and guidelines for the organization and management of Society-sponsored events;
- b. Maintain a current conference mailing list;
- c. Screen proposals for involvement by the Society in new conferences and workshops prior to submission to AdCom;
- d. Review the budgets and financial reports of all Society-sponsored events;
- e. Recommend and review appointments to conference leadership positions;
- f. Publish Calls for Proposals for major Society meetings;
- g. Propose requirements for meeting co-sponsorship or cooperation; and
- h. Ensure the proper and timely closing of conferences.

Proposed Wording, from page 6, right column

Examples of typical Standing Committees of the Society are Committees on:

- a. Academic Affairs
- b. Awards
- c. Chapter Development
- d. Constitution and Bylaws
- e. Education Activities
- f. Fellows

g. History**h. International Relations****i. Intersociety Liaison****j. Long Range Planning**

k. Meetings

l. Membership

m. Nominations

n. Publications

o. Publicity

p. Relations with TAB and other IEEE Boards and Committees

q. Standards

11.4.7 History Committee**11.4.8 International Relations Committee****11.4.8 Intersociety Liaison Committee****11.4.10 Long Range Planning Committee**

The Long Range Planning Committee shall be comprised of Senior Past President, Junior Past President, PELS Treasurer, Asian Liaison, European Liaison, Region 9 Liaison, and two other members to be chosen by the Committee Chair with the advice and consent of AdCom. This Committee shall be chaired by the Senior Past President and report to the Vice President for Operations.

The duties of Long Range Planning Committee will be to:

- a. Propose five-year goals for the Society and strategies by which to reach these goals;**
- b. Update and present the five year plan to the AdCom for approval at its Fall meeting in every even-numbered year; and**
- c. Observe financial operations of the Society and take appropriate actions to ensure that money is spent or invested wisely and in the best interest of the Society.**

11.4.11 Meetings Committee

The functions of the Meetings Committee will be to:

- a. Develop policies and guidelines for the organization and management of Society-sponsored events;
- b. Maintain a current conference mailing list;
- c. Screen proposals for involvement by the Society in new conferences and workshops prior to submission to AdCom;
- d. Review the budgets and financial reports of all Society-sponsored events;
- e. Recommend and review appointments to conference leadership positions;
- f. Act as consultant and functional supervisor to Treasurers of various meetings sponsored by the Society;**
- g. Publish Calls for Proposals for major Society meetings;
- h. Propose requirements for meeting cosponsorship or cooperation; and
- i. Ensure the proper and timely closing of conferences.

India. He became Full Professor of Electrical Engineering in 1971.

In 1972 he joined the Siemens Research Laboratories in Erlangen, Germany. His research on high-power thyristor PWM inverters resulted in the invention of the first three-level inverter. In 1973 he became Head of the Research and Development Group New Traffic Technologies. He developed the linear synchronous motor concept for magnetically levitated high-speed trains. He invented a speed sensorless drive control system for this motor and designed a magnetic guidance system for levitated trains. Further work was related to multidimensional position control of freely suspended vehicles. These activities have finally resulted in the Transrapid magnetically levitated train, which is now fully developed and will be used for public transportation in Germany. It carries 200 passengers at 300 mph.

In 1976, Dr. Holtz became Professor and Head of the Electrical Machines and Drives Laboratory at the University of Wuppertal, Germany. His inventions of the space vector modulation method for inverter control, and of the current source PWM inverter topology, have been accepted worldwide as standard industrial technologies.

Dr. Holtz has intensively researched in the field of pulsewidth modulation for electronic power conversion. Contributions of application related importance are the overmodulation technique; the generation of optimized three-phase switching sequences in real-time; the instantaneous identification of the fundamental current in a highly distorted current wave; the trajectory tracking control method for the control of power converters in the multimewatt range; an adaptive optimal pulsewidth modulation scheme for the elimination of time-variable eigenresonances in the railway overhead line; an harmonic eliminator to establish pure sine-wave currents in the ac supply line of a 6 MW locomotive without passive filter components.

Dr. Holtz has published more than 100 technical papers including 60 refereed publications in journals; he has published 10 invited conference papers and 4 invited papers in journals. He has earned four IEEE prize paper awards. He is the coauthor of four books, and has been granted 27 patents. He is a Fellow of the IEEE, a recipient of the IES Dr. Eugene Mittelmann Achievement Award, and of the IAS Outstanding Achievement Award. Dr. Holtz is Editor-in-Chief of the IEEE Transactions on Industrial Electronics.

The William E. Newell Power Electronics Award has been presented annually since 1977 for outstanding achievement in power electronics. It is presented by the Power Electronics Society and dedicated to the memory of Dr. William E. Newell of the Westinghouse Research and Development Center in Pittsburgh, Pennsylvania. The awardee has been judged to be outstanding in the multidisciplinary field of power electronics which crosses the technical boundaries of a number of Societies of the IEEE. The recipient

1998 PELS Awards from page 1

receives a suitably inscribed plaque and a cash award of \$1,750.

Achievements by which an individual is judged to have made outstanding contributions encompass a broad range of activities and include teaching, innovative research, consulting endeavors, professional seminars, major project or program management, and the general communication and advocacy of power electronics technology to the technical community as a whole. The technical disciplines which encompass the field of power electronics include the analysis, design, development, simulation and application of electronic devices, magnetics, controls and power circuits for inverters, converters and motor drives ranging in power level from fractions of a watt to megawatts.

Distinguished Service Award

The 1998 Distinguished Service Award was made to Dr. John G. Kassakian of the Massachusetts Institute of Technology where he is Professor of Electrical Engineering and Director of the MIT Laboratory for Electromagnetic and Electronic Systems. His field of expertise is power electronics and automotive electrical systems. He received his undergraduate and graduate degrees from MIT, and prior to joining the MIT faculty, he served a two year tour of duty in the US Navy.



Dr. Kassakian was the Founding President of the Institute of Electrical and Electronic Engineers Power Electronics Society, serves as the US representative to the European Power Electronics Association, and is the recipient of the IEEE Centennial Medal, the IEEE William E. Newell Award, and the Kabakjian Science Award. In 1989 he was elected a Fellow of the IEEE and in 1993 he was elected to the National Academy of Engineering. In 1993 he was also awarded an IEEE Distinguished Lectureship through which he has lectured internationally.

He has published extensively in the areas of power electronics, power systems, education and manufacturing, is a member of the Boards of Directors of Sheldahl, Inc., Ault, Inc., and ISO New England Co. (the independent system operator of the New England electric utility system), serves as a consultant to government and industry, and is a coauthor of the textbook *Principles of Power Electronics*. Dr. Kassakian's interests include sailing, fishing, golf and gardening. He has two children and resides with his wife in Newton, Massachusetts.

The Distinguished Service Award is 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 a cash award of \$1,200 and an engraved plaque to be presented at the PELS Awards Banquet customarily held at the annual Power Electronics Specialists Conference. All members of the Power Electronics Society are

eligible. The basis for judging candidates for the award includes outstanding contributions over a substantial time period encompassing creative and invigorating leadership of the Society, exceptional administrative and managerial accomplishments on behalf of the Society, identification of new technologies within the scope of the Society and nurturing activities to support these emerging technologies, initiation of innovative programs to encourage wider participation in the full spectrum of Society activities, and the general communication and advocacy of power electronics technology to the technical community as a whole.

Outstanding Young Power Electronics Engineer Award

Frede Blaabjerg (S'86-M'88-S'90-M'91-SM'97) was born in Erslev, Denmark, on May 6, 1963. He received the Msc.EE. from Aalborg University, Denmark in 1987, and the Ph.D. degree from the Institute of Energy Technology, Aalborg University, in 1995. He was employed at ABB-Scandia, Randers, from 1987-1988. During 1988-1992 he was a Ph.D. student at Aalborg University.



He became an Assistant Professor in 1992 at Aalborg University and in 1996 he became Associate Professor. His research areas are in power electronics, static power converters, ac drives, switched reluctance drives, modeling, characterization of power semiconductor devices and simulation. He is involved in more than ten research projects with industry.

Dr. Blaabjerg is a member of the European Power Electronics and Drives Association and the IEEE Industry Applications Society Industrial Drives Committee. He is also a member of the Industry Power Converter Committee in the IEEE Industry Application Society. He serves as a member of the Danish Technical Research Council in Denmark. He received the 1995 Angelos Award for his contribution in modulation technique and control of electric drives, and the Annual Teacher prize at Aalborg University.

The Outstanding Young Power Electronics Engineer Award is to recognize outstanding achievement in the field of power electronics by an engineer of less than 35 years of age. The prize consists of a cash award of \$500, a certificate, and reimbursement for transportation expenses up to \$500 to attend the annual PELS Awards Banquet. All IEEE members of any grade, active in the field of power electronics and less than 35 years of age as of January 1 of the year of the award, are eligible. The basis for judging candidates for the award includes outstanding contributions in the multidisciplinary field of power electronics. Outstanding contributions encompass a broad range of activities including research, innovative product design, teaching and project management. The technical disciplines which encompass the field of power electronics include the analysis,

What's New with PELS Chapters

by Bill Dunford, Chair, Chapters Development Committee

I recently circulated e-mail to all the chapter contacts on my list, but several bounced back. Really, the most difficult part of my job is to find out who is looking after the various chapters and what they are doing. If you are one of these organizers who has not contacted me recently please e-mail me at wgd@ee.ubc.ca so that I can finally get our chapters web page up to date.

This leads nicely into the next point, which is chapter awards. We are proposing to institute a Best Chapter Award to be awarded at PESC 2000, based on activities in 1999. The approval process is a little involved, but we are now working on the details, so I would welcome any input. I intend the award to be primarily on the basis of activity and at present there are only three or four chapters that I know to be really active.

The video tapes (PAL and NTSC versions) on drives have already been used by a number of chapters. Please let me know if your chapter would like to borrow them. Our current group of Distinguished Lecturers are nearing the end of their terms and action is being taken to appoint new ones. Suggestions from anyone on good candidates can be sent to me and I will pass the names on to the Awards Committee.

One suggestion that was raised recently was that chapters may like to translate IEEE forms such as membership applications into local languages and also translate the replies. I am not sure how much demand there would really be for this service, but some money



might be found to support the effort. I would like to hear comments on this, with suggestions for any other possible chapter services.

The number of chapters has been rising steadily by two or three a year (active organizing efforts are under way in Russia and Spain) and as I have mentioned previously it may be time to look at a organizing chapters on a regional basis, as is done in other societies. Dr. A. K. Aggarwal of the Gujarat Chapter (aka@adl.vsnl.net.in) has kindly offered to be a local contact in India and I would like to find other volunteers in other parts of the world. The Gujarat Chapter is involved in organizing a conference in December and details can be found via <http://www.ieee-gujarat.org>

I would remind chapters that although we encourage the organization of activities at the local level there is a formal procedure to be followed for international conferences and where PELS is to be involved on an official basis. The main reason for this is to reduce clashes between conferences with similar interests. I can supply more details on request.

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e-mail: wgd@ee.ubc.ca*

1998 PELS Awards from page 8

design, development, simulation and application of electronic devices, magnetics, controls and power circuits for inverters, converters and motor drives ranging in power level from fractions of a watt to megawatts.

Transactions Prize Paper Awards

The winners of the Prize Paper Awards are selected by a process of nomination and selection by the Editor and Associate Editors of the PELS *Transactions*. Each Associate Editor nominates one paper from the previous year's *Transactions*, and the three winning papers are selected through a priority-ranking ballot procedure. An award of \$300 is made for each of the three papers which is to be divided among the coauthors when a paper has more than a single author. The prize-winning papers from the 1997 *Transactions on Power Electronics* are:

"Thermal Analysis of High-Power Modules"

The authors are C. Van Godbold, with the University of Michigan, Dearborn, MI USA; V. Anand Sankaran, with the Vehicle Electronics Systems Department, Ford Research Laboratory, Dearborn, MI USA; and Jerry L. Hudgins (M'85-SM'91), with the Electrical and Computer Engineering Department, University of South Carolina, Columbia, SC USA.

"A New Low-Cost Fully Fault-Protected PWM-VSI Inverter with True Phase-Current Information"

The authors are Frede Blaabjerg and John K. Pedersen, both with Aalborg University, Institute of Energy Technology, Aalborg, Denmark.

"Finite-Element Formulation of Field-Based Subcircuits for Modeling of Magnetic Components with Hysteresis"

The authors are Jia-Tzer Hsu and Khai D. T. Ngo, both with the University of Florida, Gainesville, FL USA.

President's Message, from page 1

the William E. Newell Power Electronics Award, the Society Distinguished Service Award, and the Outstanding Young Power Electronics Engineer Award.

TAB

A draft of the TAB (Technical Activities Board) Society Review Committee's Report has been issued. This report is in response to the five-year review report provided by PELS to TAB in June of 1997. In general, the Review Committee report was very complimentary of the operation and functions of the PELS. I was asked to join a TAB focus group on intellectual property for the IEEE. Intellectual property issues are a crucial component of the Institute's overall strategy for exploiting the growing market for information in electronic form. If IEEE chooses to enhance its role as a direct provider of electronic information, then considerable value would need to be added to that information beyond the value traditionally provided by the author of the intellectual property. This in turn would require a new model for distribution of income that would include support for the authors, as well as the providers of the additional value. Since the vast majority of IEEE information comes out of TAB, TAB needs to take a leadership role in the management of these changes. A draft policy statement on intellectual property that covers not only traditional print products and publications, but also current and evolving electronic products and publications as well, will be produced by the focus group. If any member has opinions on this matter, I am particularly interested in hearing from you.

*Jerry Hudgins, President
IEEE Power Electronics Society
University of South Carolina
Dept. of Elect. and Comp. Engrg.
Columbia, SC 29208 USA
TEL: +1-803-777-5174
FAX: +1-803-777-8045
e-mail: hudgins@ece.sc.edu*

will be addressed. The final selection will be done by balloting the committee. Conference advocates will be informed of the results of the ballot by October 1999.

PESC 2004 site proposals should be sent to:
*Tom Habetler
PESC Steering Committee Chair
Georgia Tech
School of ECE
Atlanta, GA 30332, USA
Fax: +1-404-894-4641
e-mail: thabetler@ee.gatech.edu.*

CALL FOR PAPERS**WPET '98****1998 IEEE Workshop on Power Electronics in Transportation***Sponsored by***IEEE Power Electronics Society****IEEE Southeastern Michigan Section***In Cooperation with***Society of Automotive Engineers***October 22-23, 1998***Dearborn, Michigan, USA**

The theme of the WPET '98 is "Power Electronics in Electric and Hybrid Vehicle Applications." The focus will be on COST and QUALITY of Power Electronics Systems. Papers are solicited on all aspects of automotive power electronics, particularly in the following areas:

- Commonization/Standardization of Automotive Power Converters and Motor Drives;
- Automotive Architecture including Power Distribution and Communication;
- Packaging and Thermal Management, EMI, High-Voltage and High-Power requirements in Automobiles; and
- Technologies to meet PNGV Goals.

Prospective authors should submit four (4) copies of a 300- to 500-word summary of the papers and observe the following timetable:

April 17, 1998	Submission deadline for the summaries of the papers
May 29, 1998	Notification of acceptance
August 15, 1998	Submission for the final manuscripts

Submit the summaries of the papers to:

Dr. Kaushik Rajashekara
Delphi Energy & Engine Management Systems
7601 East 88 Place
Indianapolis, IN 46356
USA

TEL: +1-317-579-3705

FAX: +1-317-579-4991

e-mail: LNUSIND.NZQVMT@GMEDS.COM

For other information about the Workshop:

Dr. Xingyi Xu
Ford Research Laboratory
P.O. Box 2053, MD #1170/SRL
Dearborn, MI 48121-2053
USA

TEL: +1-313-594-3169

FAX: +1-313-323-8239

e-mail: XXU@FORD.COM

The workshop follows Convergence '98, the International Congress on Transportation Electronics to be held in Dearborn October 19-21, 1998. The workshop participants will have a unique opportunity to contribute in developing power electronics as part of transportation electronics.

COBEP '99**FIRST CALL FOR PAPERS**

The 5th Brazilian Power Electronics Conference (COBEP' 99) is being organized by the Brazilian Power Electronics Society (SOBRAEP) and by the Federal University of Paraná and Federal University of Santa Maria, Brazil. The congress will take place September 19-23, 1999, in Foz do Iguaçu, state of Paraná, southern Brazil. The aim of this conference is to provide a forum for the discussion for Brazilian and foreign experts in the Power Electronics area, featuring strong participation of industry and academia.

A list of relevant topics includes, but is not limited to the following

- (1) Power semiconductor devices, components and magnetics;
- (2) DC/DC converters and DC power supply systems;
- (3) DC/AC and AC/DC converters for power supply and UPS applications;
- (4) Motor drives and motion control;
- (5) Electric machines;
- (6) Control theory applied to power electronics systems;
- (7) Computer-aided modeling, analysis, design and synthesis of power electronics systems;
- (8) Harmonics and reactive power compensation and high power factor AC/DC converters;
- (9) Power quality, electromagnetic compatibility (EMC) and electromagnetic interference (EMI) issues;
- (10) Power electronics in generation, transmission and distribution and renewable energy systems;
- (11) Automotive, aerospace, transportation and utility applications of power electronics;
- (12) Electronic ballast for lighting;
- (13) Education in power electronics.

Information for authors

Authors are invited to submit (4) four copies of an extended digest in English of no less than four pages and no more than six pages. A cover page must contain the title of the paper, name and affiliation of the author(s), mailing address, telephone and FAX number, e-mail address and the topic of the paper. The heading of the extended digest must contain only the title of the paper. The accepted papers can be presented at the Conference in English, Portuguese or Spanish. The overhead transparencies or slides, however, must be prepared in English. **Deadline for submission of digest: March 12, 1999; Notification of acceptance: May 14, 1999; Final version of the paper: July 9, 1999.** Please submit paper digests to COBEP '99 Program Chair, Prof. José Renes Pinheiro, Universidade Federal de Santa Maria, UFSM-CT-DELTA, 97105-970-Santa Maria-RS, Brasil, e-mail renes@pequim.ctlab.ufsm.br.

For more information, visit the conference web site <http://www.sobraep.ufsc.br/cobep99>.

CALL FOR PAPERS**NORPIE/98****1998 IEEE Nordic Workshop on Power and Industrial Electronics**

August 26-27, 1998

Helsinki University of Technology

Department of Electrical

and Communications Engineering

Espoo, Finland

The 1998 Nordic Workshop on Power and Industrial Electronics is cosponsored by the IEEE Power Electronics Society; the IEEE Finland Section; the Institute of Intelligent Power Electronics, Helsinki University of Technology; Lappeenranta University of Technology and several industrial companies. It is a continuation of the successful FINPIE/97. The workshop is intended for researchers, R&D engineers and managers, as well as postgraduate students specializing in the fields of power and industrial electronics.

NORPIE/98 will be devoted to all aspects of theory, design, and applications of power and industrial electronics. Papers describing new research and development are invited for technical session on, but not limited to the following topics:

- Advanced control and measurement
- Electric machines
- Electric drives
- High-frequency power converters
- Industry applications
- Modeling and simulation
- Power electronics devices
- Power electronics systems
- Signal processing

The six-page final papers will be published in the Proceedings of NORPIE/98 that will be available at the workshop. To submit a proposal, send three (3) copies of a two-page summary of the paper (in English) to:

Prof. Juha Pyrhönen**Lappeenranta University of Technology****P.O. Box 20****FIN-53851 Lappeenranta, Finland****Schedule:**

Submission of proposal until April 30, 1998

Notification of acceptance until June 5, 1998

Submission of final paper until August 3, 1998

For more information:

e-mail: NORPIE@hut.fi

Web site: [http://www.hut.fi/Units/](http://www.hut.fi/Units/PowerElectronics/norpie98.html)[PowerElectronics/norpie98.html](http://www.hut.fi/Units/PowerElectronics/norpie98.html)



PESC '98
Sea Hawk Hotel
Fukuoka, Japan

Clockwise from top left: PESC highlights: plenary session, reception with great food, friendly discussions, magnificent banquet, Antoine Capel and Japanese dancers, technical session, Sea Hawk baseball mascot at adjacent Fukuoka Dome. See related articles on page 1.

International Workshop on Integrated Power Packaging

IWIPP, the First International Workshop on Integrated Power Packaging will be held at the Ramada Congress Hotel, in Chicago, Illinois, USA, September 18-20, 1998, at the Ramada Congress Hotel. The main objective of this Workshop is to provide a forum for information exchange in the area of electronic packaging relevant to power electronics. Topics to be covered include, but are not limited to: 3-D power packaging, CAD tools, EMI effects in packaging, fabrication techniques, high temperature reliability, integration, material systems and thermal management. Important application areas of interest include, but are not limited to: appliances, automotive, drives, lighting, portable elec-

tronics, power supplies and telecom. There will be one day of short courses, a plenary session, a luncheon speech, two evening panel sessions, and several additional technical sessions.

The IWIPP is sponsored by the IEEE Power Electronics, Industry Applications and Components, Packaging and Manufacturing Technology Societies and will be held in cooperation with the IEEE Electron Devices Society and the Power Sources Manufacturers Association. A Proceedings of technical papers will be made available to all participants at the Workshop.

Deadlines have passed for submission of paper abstracts and summaries. For authors whose abstracts have been accepted,

camera-ready manuscripts are due August 3, 1998.

For further information, please contact:

Dr. Krishna Shenai, General Chairman, University of Illinois at Chicago, Chicago, IL 60607-7053, USA TEL: +1-312-996-2633, FAX: +1-312-996-0763; e-mail: shenai@eecs.uic.edu, or

Dr. Douglas C. Hopkins, Technical Program Chairman, PO Box 6000, State University of New York (SUNY), Binghamton, NY 13902, TEL: +1-607-777-2333, FAX: +1-607-777-4464, e-mail: d.hopkins@ieee.org, or

Mr. Robert Myers, Workshop Manager, Myers/Smith, Inc., 3685 Motor Ave., Los Angeles, CA 90034, USA, TEL: +1-310-287-1463, FAX: +1-310-287-1851 e-mail: bob.myers@ieee.org

Meetings of Interest to PELS Members

COMPEL '98, the 6th IEEE Power Electronics Society Workshop on Computers in Power Electronics, will be held July 19-22, 1998, at Villa Olmo in Como, Italy.

NORPIE/98, 1998 IEEE Nordic Workshop on Power and Industrial Electronics, will be held August 26-27, 1998, at Helsinki University of Technology, Espoo, Finland. For more information, see the Call for Papers on page 10 of this *Newsletter*.

IWIPP, First International Workshop on Integrated Power Packaging will be held September 18-20, 1998 in Chicago, Illinois, USA. For more details see page 11 of this *Newsletter*.

ESPC-98, Fifth European Space Conference, sponsored by the European Space Agency in cooperation with Universitat Rovira I Virgili, Tarragona, is scheduled for September 21-25, 1998 in Tarragona, Spain. For additional details, contact Mrs. J. Sanchez-Michielsen, Power and Energy Conversion Division (XP), ESTEC, P.O. Box 299, 2200 AG Noordwijk, The Netherlands.

INTELEC® '98, International Telecommunications Energy Conference, sponsored by the IEEE Power Electronics Society, will be held October 4-8, 1998, in San Francisco, CA, USA. For additional details, see page 3 of this *Newsletter*.

CIEP '98, VI International Power Electronics Congress, will be held October 12-15, 1998, in Morelia, Mexico. For additional information, contact Dr. Rodolfo González, Instituto Tecnológico de Morelia, Av. Tecnológico 1500, Morelia, Michoacán, 58120, Mexico, Web site: www.tecmor.mx/

eventos/ciep.htm.

The 32nd Annual Meeting of the IEEE Industry Applications Society will take place October 12-16, 1998, at the Adams Mark Hotel, St. Louis, Missouri 32102, USA. For additional information, contact Bob Myers, 3685 Motor Avenue, Suite 240, Los Angeles, California 90034, USA, TEL: +1-310-287-1463, FAX: +1-310-287-1851, e-mail: bob.myers@iee.org.

WPET '98, 1998 IEEE Workshop on Power Electronics in Transportation, Sponsored by the IEEE Power Electronics Society and the IEEE Southeastern Michigan Section, in cooperation with the Society of Automotive Engineers, will be held October 22-23, 1998, in Dearborn, Michigan, USA. For additional details see page 10 of this *Newsletter*.

ICPE '98, 1998 International Conference on Power Electronics, is set for October 26-31, in Seoul, Korea. The conference is sponsored by the Korean Institute of Power Electronics.

IEEE PEDES '98, 2nd IEEE International Conference on Power Electronics, Drives and Energy Systems for Industrial Growth, sponsored by the Centre for Renewable Energy Systems Technology Australia (CRESTA), School of Electrical and Computer Engineering, Curtin University of Technology, IEEE Western Australian Section, Perth Convention Bureau, and QANTAS, The Australian Airline, and in cooperation with the IEEE Power Electronics and Industry Applications Societies, is set for November 30-December 3, 1998, in Perth, Western Australia. Prospective paper digests are due

by April 10, 1998. For further details, visit <http://www.at.net.at/pedes98/>, or inquire by email to Pedes98@at.net.au or cresta@cc.curtin.edu.au.

APEC® '99, 14th 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 at The Hyatt Regency Hotel, Dallas, Texas, USA, March 14-18, 1999. See page 4 of this *Newsletter* for announcement and call for papers.

PESC® '99, IEEE Power Electronics Specialists Conference, will be held June 27-July 1, 1999, at the Charleston Place Orient-Express Hotel, Charleston, South Carolina, USA. PESC '99 is sponsored by the IEEE Power Electronics Society. See page 5 of this *Newsletter* for announcement and call for papers.

COBEP '99, 5th Brazilian Power Electronics Conference will take place September 19-23, 1999, in Foz do Iguaçu, state of Paraná, southern Brazil. It is organized by the Brazilian Power Electronics Society (SOBRAEP) and by the Federal University of Paraná and Federal University of Santa Maria, Brazil. See page 10 of this *Newsletter* for more information.

PESC® '2000, the 31st IEEE Power Electronics Specialists Conference, sponsored by the Power Electronics Society, will be held June 18-23, 2000, at the National University of Ireland, Galway, Ireland. For advance information of this conference visit <http://pesc00.ucg.ie/pesc00/>.

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