



## President's Column



Dr. William T. Chen  
IEEE Fellow  
President, IEEE CPMT Society  
Santa Clara, CA, USA  
Wt-chen@ieee.org

### Greetings

This is my first message to you as President of CPMT. I am excited to assume this office. CPMT is the foremost technical society of my profession, and I believe that there is no better place to serve our profession than to serve in CPMT. At the same time, there is a strong sense of humility in following in the footsteps of my predecessors, who have done so much for CPMT and for our profession. I wish to acknowledge Phil Garrou for his leadership and dedicated service as President of CPMT for the term 2004-2005. Under his leadership, the Society has continued to make great progress in the goal of a truly global technical professional society serving the global membership of our profession.

On behalf of CPMT, I wish to acknowledge the retiring Board of Governors (BoG) officers and members at large for many years of dedicated and enthusiastic service to the CPMT Society.

H. Anthony Chan: VP of Administration  
John Segelken: VP of Finance  
Connie Swager: Strategic Program Director, Marketing  
Timothy Adams: Chair Web Development  
Merrill Palmer: Member at Large  
David Whalley: Member at Large  
Walter Trybula: Member at Large  
Jan Vardaman: Member at Large

We extend our very sincere thanks to you. This is not a goodbye. We are looking forward to seeing you at the society activities. And we would welcome you to visit at the BoG meetings.

*(Continued on Page 3)*

## IEEE Fellow Nomination Process

Dr. David Palmer  
IEEE CPMT Fellow Search Committee

March 1<sup>st</sup> was the deadline for submitting nominations for the next group of IEEE Fellows of the Institute which will be announce at the end of 2006. Thus, it is a good time to remember what the quest for Fellow is about and to get ready to start the process for the next year. To quote from the IEEE web site:

*(Continued on Page 7)*

### IEEE CPMT Society Newsletter March, 2006 Index

• Presidents Message:	1
• Fellows Nomination Process:	1
• Interviews:	4
• Fellow Grade:	7
• Senior Member Grade:	8
• Workshop / Conference Reports:	9
• Chapter Reports:	9
• IEEE 2007 Pres. Elect Candidate Interviews	10
• Announcements:	13
• Conferences: ECTC, EPTC, IThERM, etc	14

Cartoonists at risk...



## CPMT Officers

<b>President:</b>	William T. Chen	+1-919-248-9261
<b>Technical VP:</b>	N.Rao Bonda	+1-480-413-6121
<b>VP (Finc.):</b>	Thomas G. Reynolds III	+1-732-920-3023
<b>VP (Publ.):</b>	Paul B. Wesling	+1-408-331-0114
<b>VP (Conf.):</b>	Rolf Aschenbrenner	+49-30-46403-160
<b>VP (Educ.):</b>	Albert F. Puttlitz	+1-802-879-0466 (Fax)
<b>Sr. Past Pres.:</b>	Rao Tummala	+1-404-894-9097
<b>Jr. Past Pres.:</b>	Phil Garrou	+1-919-248-9261
<b>Secretary:</b>	Ron Gedney	+1-703-834-2084
<b>Exec. Director:</b>	Marsha Tickman	+1-732-562-5529
<b>IEEE-USA Pres:</b>	Ralph Wyndrum	+1-732-219-0005

## Elected Board Members

**2008:**  
Vasudeva P. Atluri, Li Li, Dongkai Shangguan, Patrick Thompson, Klaus-Jürgen Wolter, and Kishio Yokouchi

**2007:**  
Eric O. Beyne, Steve J. Bezuk, N. Rao Bonda, Rajen Chanchani, Kitty Pearsall, and C.P. Wong

**2006:**  
E. Suhir, T.G. Reynolds, III, P.C.H. Chan, J. Liu, W. D. Brown, C. Lee

## CPMT Society Newsletter

**Editor:** Vasudeva P. Atluri, email: vpatluri@ieee.org  
Tel: +1-480-554-0360, FAX: +1-480-563-0049

**Associate Editor:** Li Li, li.li@ieee.org, +1-480-413-6653

**Associate Editor:** Debendra Mallik, dmallik@ieee.org  
+1-480-554-5328

## CPMT Archival Publications

**Publications VP:**  
Paul Wesling, +1 408 331 0114; p.wesling@ieee.org

**Editor-in-Chief, CPMT Transactions:**  
Avram Bar-Cohen, Univ. of Maryland, barcohen@eng.umd.edu

**Transactions-CPT Editors in Chief:**  
Ricky S.W. Lee, Hong Kong Univ of Science & Technology,  
+852-2358 7203; rickylee@ust.hk

Koneru Ramakrishna, Freescale, Inc., +1-512-933-2555; rama@ieee.org

**Transactions AdvP Editor in Chief:**  
G. Subbarayan, Purdue University, Mechanical Engineering Dept.,  
+1-765-494-9770; ganeshs@ecn.purdue.edu

**Transactions EPM Editor in Chief:**  
R. Wayne Johnson, +1-334-844-1880, johnson@eng.auburn.edu

## Technical Committee Chairs

**TC-ECCC (1) Electrical Contacts, Connectors and Cables:**  
Gerald Witter, Chugai, +1-708-244-6025

**TC-Assy (3) IC and Package Assembly:**  
Martin Goetz, IBM, mgoetz@us.ibm.com

**TC-EM (4) Manufacturing Design & Process:**  
Walt Trybula, SEMATECH, +1-512-356-3306

**TC-M (5) Materials:**  
Rajen Chanchani, Sandia Labs, +1-505-844-3482, r.chanchani@ieee.org

**TC-HDSB (6) High Density PWB packaging:**  
Yoshitaka Fukuoka, weisti.fukuoka@rose.zero.ad.jp

**TC-ASTR (7) Environmental Stress & Reliability Test:**  
Kirk Gray, k.a.gray@ieee.org

**TC-Therm (9) Thermal Management & Thermomech. Design:**  
Tony Mak, Dallas Semi, +1-972-371-4364; tony.mak@gmail.com

**TC-Opto (10) Fiber Optics & Photonics:**  
Susan Law, Fax: +612-9351-1911, Email: s.law@oftc.usyd.edu.au

**TC-Test (11) Electrical Test:**  
Bruce Kim, Univ of Alabama, bruce.kim@ieee.org; +1-205-348-4972

**TC-EDMS (12) Electrical Design, Modeling and Simulation:**  
Madhavan Swaminathan, Georgia Tech, +1-404-894-3340

**TC-PEP (13) Power Electronics Packaging:**  
Doug Hopkins, SUNY Buffalo, +1-607-729-9949, d.hopkins@ieee.org

**TC-SP (14) Systems Packaging:**  
Erich Klink, eklink@de.ibm.com

**TC-RF+W (16) RF and Wireless:**  
Craig Gaw, Freescale, +1-480-413-5920; c.a.gaw@ieee.org

**TC-MEMS (17) MEMS and Sensor Packaging:**  
Eric Jung, IZM, Berlin, email: erju@izm.fhg.de

**TC-WLP (18) Wafer Level Packaging:**  
Michael Toepper, IZM, Berlin, toepper@izm.fhg.de

**TC-Ed (19) Education:**  
Paul Wesling, +1-408-331-0114; p.wesling@ieee.org

**TC-GEMP (21) Green Electronics Manufacturing and Packaging:**  
Hansjoerg Griese, griese@izm.fhg.de

**TC-NANO Nano Packaging:**  
Rao Tummala, Georgia Tech, rao.tummala@ee.gatech.edu

## Standing Committee Chairs

**Student Chap. Dev.:** William D. Brown, wdb@enr.uark.edu

**Distinguished Speakers:** A.F. Puttlitz, +1-802-879-0466 (Fax)

**Fellows Search:** Rao Tummala, rao.tummala@ee.gatech.edu  
David Palmer, d.palmer@ieee.org  
C. P. Wong, cp.wong@ieee.org

**Fellows:** Tony Mak, +1-972-371-4364; tony.mak@gmail.com

**Const. & Bylaws:** Joe Brewer, +1-352-475-1480; j.brewer@ieee.org

**Membership and Chap. Development:** Ralph Russell, II, cpmt-membership@ieee.org

**Nominations:** John Segelken, +1-732-920-3023

**Europe Liaison:** Ephraim Suhir, +1-908-582-5301

**Asia Liaison:** W. T. Chen, +65-874-8110

**Jt. Comm. on Sem. Manufacturing:** G.C. Cheek

**iNEMI Roadmap**

**Coord. Comm.:** www.ectc.org/nemi  
Rolf Aschenbrenner, aschenbr@izm.fraunhofer.de  
Phil Garrou, philgarrou@worldnet.att.net

IEEE Components, Packaging, and Manufacturing Technology Society Newsletter is published quarterly by the Components, Packaging, and Manufacturing Technology Society of the Institute of Electrical and Electronics Engineers, Inc. Headquarters: 3 park Avenue, 17th Floor, New York, NY 10016-5997. US\$1.00 per member per year (included in Society fee) for each member of the Components, Packaging, and Manufacturing Technology Society. Printed in U.S.A. periodicals postage paid at New York, NY, and at additional mailing offices. Postmaster: Send address changes to IEEE CPMT Newsletter, IEEE 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved, copyright (c) 2005 by the CPMT Society of IEEE. Authors and Artists given full permission for further use of their contributions. For circulation information call IEEE customer Service 908-981-1393, or FAX 908-981-9667.



### 2006 Deadlines for Submitting Articles:

June 5<sup>th</sup>, 2006

September 5<sup>th</sup>, 2006

December 5<sup>th</sup>, 2006

Members-only Web ([www.cpmt.org/mem/](http://www.cpmt.org/mem/))

UserName:

Password: (for access. join CPMT)

## ***President's Column (continued from Page 1)***

### ***CPMT:***

First I'd like to say a few words about CPMT.

What is CPMT? The Components Packaging and Manufacturing Technology Society (CPMT, in short) is a world-wide network of engineers and scientists with a shared interest in the engineering and sciences related to the packaging and manufacturing of electronic/photonic components, or micro-electronic systems packaging and manufacturing. CPMT is one of 42 Technical Societies of IEEE. IEEE, at 350,000 members, is one of the largest technical organizations in the world. As members of CPMT, we are a part of the larger community of IEEE technical professionals working towards the betterment of our profession and of the society in general.

While CPMT is a Technical Society of IEEE, many of us are not trained as Electrical Engineers. Our members come from all walks of the engineering science and technology disciplines. We are a truly multidisciplinary profession.

What makes me say that CPMT is the foremost society of our profession? The three CPMT Transactions are the most authoritative and widely read archival journals in Microelectronics Packaging. The CPMT-sponsored conferences and workshops, including our three "flagships of ECTC, EPTC, and ESTC, are the most respected technical conferences of our profession, where the industry regularly searches for the latest and greatest in knowledge and innovations, and educational courses. Our technical committees lead technical activities riding at the edge of the technology envelope. CPMT chapters around the globe are sponsoring conferences and workshops actively working towards enhancing the knowledge base and technical agility of our membership. We are a volunteer organization. The reach and strength of the society demonstrates the enthusiasm and dedication of the very many volunteers who spend countless hours in the different facets of CPMT's activities. They are the leaders of our profession. It is these volunteers who have made CPMT into the foremost society of our profession.

### ***Our Profession:***

What is CPMT? A simple answer is that it is a "packaging" society. When my children were young, they asked me what my job was, so that they could explain their father's profession at show-and-tell in school. I told them that I worked in "packaging" in IBM. Then, to impress the grave responsibility of what I did in their young minds, I said that I worked in packaging of large, heavy, and expensive computers. Somehow they never did ask me why I went to work everyday in suit, tie, and white shirt. And I did not ask them how their classmates questioned them in show-and-tell.

Today, we would not have much trouble to explain what we do. Electronics is pervasive in the society. Many people are carrying millions of transistors in their pockets, on their desks, and in their automobiles, toys and games. If the question were asked of me today, I would say that I worked in the packaging of transistors, and I would add the aside that they have become nano-sized through Moore's Law. Consumers today show that they care about how those transistors

are packaged through their buying power. They are an important driving force for our industry, and the implications are far reaching.

The technology landscape, the industry ecosystems and the market have been changing, and the pace is accelerating. With the fast-paced changing landscape, CPMT's value propositions are more important than ever in helping our members to be technologically savvy and intellectually agile to survive, grow, and prosper. What are those value propositions?

### ***Value Propositions: Knowledge Resources and Journal Publications***

Whether one is a seasoned engineer or a new graduate entering the profession, to have the relevant knowledge resources to keep up with what is going on or to know other facets of the technology is a significant challenge. The CPMT Society publishes three peer-reviewed archival Journals – *Transactions on Components and Packaging Technologies*; *Transactions on Advanced Packaging*; *Transactions on Electronics Packaging Manufacturing*. They are the authoritative source of technical information. They are also the best place for our professionals to publish their best original papers. Survey has shown that IEEE journal articles are in the high range for citation, and CPMT Transactions contribute to these survey statistics. Members are encouraged to make use of IEEE's XPLORE search engine which can be accessed at [ieeexplore.ieee.org](http://ieeexplore.ieee.org) to do online search for information in the full IEEE database which includes CPMT papers dating back to 1954. CPMT also co-sponsors other journals with other societies because we share common interest with these societies: *Trans on Semiconductor Manufacturing*; *Trans on Nanotechnology*; *Trans on Applied Superconductivity*; *Journal of Display Technology*; and *Sensors Journal*.

Publications are major value propositions for our society. Behind each journal issue are countless hours of toil for the authors, reviewers, and the editors. Paul Wesling, VP for publications, and his merry band of editors, are constantly working towards improvements in the content, quality, and timeliness of the publications. You will hear from him, and they would love to hear from you.

### ***Conferences and Workshops:***

CPMT has a track record of sponsoring high quality conferences and workshops spanning the many diverse fields associated with our professional interest. ECTC will be in its 56<sup>th</sup> year this May in San Diego USA, and we shall initiate the first Electronic Systemintegration Technology Conference (ESTC) in Dresden, Germany in September. In this Newsletter, and on the CPMT Web Page ([www.cpmnt.org](http://www.cpmnt.org)), one can find a complete listing of information on conferences and workshops covering a wide spectrum of technical areas across the globe. The BoG has recognized that to serve the global membership, it is important to develop and nurture flagship conferences across the geographical locations. Behind each and every conference and workshop will be local and international organizers, paper committees, authors, presenters, and the attendees. The conference proceedings are valuable sources of information. And they also represent a great supply chain of papers for the Transactions. Rolf Aschenbrenner has assumed the position of VP for Conferences this term. He would

dearly welcome suggestions, ideas, as well as volunteers for conferences and workshops.

#### *Education:*

Packaging is not traditionally in a university degree curriculum. Our membership learn their “trade” – their knowledge and expertise – on the job. The Society organizes topical seminars, packaging technology courses during international and regional conferences, and section/chapter workshops, to help our members gain knowledge and skill in their jobs. There is a Distinguished Lecturer Program that makes speakers available to chapters to complement their technical programs. At another level, CPMT has sponsored academic conferences to bring the academics community together for curricula, courses, textbooks, and programs with the vision that future engineers and scientists in our profession will not have their first training in packaging technology on the job. Al Puttlitz, an industry veteran, is our VP of education. Please contact him for your input on educational needs or ideas for a course.

#### *Technical Committees:*

With the fast paced changing landscape of our profession, it is vitally important to have our membership on the pulse of technology development when it is happening and to understand its direction. This is the responsibility of the CPMT Technical Committees. There are altogether 21 Technical Committees on various topics of interest to our membership, see Web Page, [www.cpmt.org/tc](http://www.cpmt.org/tc). The role of the technical committee is to regularly review, debate, and report significant developments and trends in their field of interest. Out of such intellectual ferment come ideas for sessions in conferences, workshops, and educational programs, or perhaps white papers. Taken together, the Technical Committees play the important role of keeping the Society activities fresh and relevant for the members at the leading edge. Rao Bonda assumed the position of Technical VP starting this term. I am sure that he would welcome technical inputs and volunteers to join the committees.

#### *Membership and Chapters:*

The Society exists to serve the membership and many of our members belong to local chapters of CPMT. I have been fortunate that I have personally benefited from really good programs and projects from at least four CPMT chapters in different regions around the world. The learning, the networking, the camaraderie, and the give and take from chapter meetings and personal contacts add a significant new dimension to one’s personal knowledge growth and currency. Membership and Chapter Development are at the core of the Society’s vitality and growth. Ralph Russell has the dual role as Strategic Program Director for Membership and Chapter Development. Please contact him with any ideas for your chapter and membership.

#### *IEEE:*

Last month I attended my first IEEE Technical Activities Board (TAB) meeting. It served as an introduction to the operations of the IEEE infrastructure and how the CPMT Society operates within this infrastructure. I came away

from the meeting with two strong impressions. First of all, in meeting with the presidents of the other IEEE Societies and Councils, there is a good sense that we are a part of the greater community of IEEE professionals and our members share with their members many common professional interests. Secondly, there is a well organized and established IEEE infrastructure within which CPMT Society operates. I am very happy that Marsha Tickman, CPMT Executive Director, is well-versed and very knowledgeable (I think “savvy” is the word that I am looking for) for keeping us going along the way. Tom Reynolds, our new VP for Finance, is attending similar sessions this month. I have great respect for Tom in his knowledge and perspective. I have no doubt that he will be a tower of strength in this key role for the society.

#### *CPMT – We need your help:*

Our industry is globally distributed. With the internet, our reach is also global. In the industry, collaborative engineering and research are being accomplished across time zones and geographical distances. For our membership, it is vitally important that CPMT help us to broaden the global outlook in ourselves, in our work, in our research and in our teaching. We will nurture membership and start chapters where our industries are expanding, and build linkages and networks to existing chapters and membership. We will move ahead of the tide of changes to help our members with advancing technologies. We will continue to make the CPMT value propositions relevant and crucial for our membership. We will make outreach to where our potential members are and will be. To achieve this, all of us must work together with our collective effort and expertise.

We have a great team of volunteers on the BoG. While we come from different backgrounds and geographical locations, we are united in our interest to work for the betterment of our membership and CPMT. We are looking forward to working for you and with you towards these goals.

---

## **Interview with Dr. William T. Chen, CPMT Society President .....**

By Dr. Li Li , Associate Newsletter Editor

**Editor:** Welcome, Bill, can you please tell us a little bit about your background, and your family?

**Bill Chen:** My formal education was in mechanical engineering. I went to University of London, UK, and graduate schools at Brown and Cornell. Throughout my studies, my interest lay in the areas of materials and mechanics. I started at IBM in the sixties, where I was in their advanced technology group in New York, which included packaging R&D. I have been very fortunate to have grown up with the industry. Initially, my work was in packaging for mainframe computers but with the changing landscape of the industry, I have been working more in areas related to high-volume packaging, such as in the PC and consumer arena. While working at IBM, I learned the importance of understanding how technology is moving, and the importance of working with professional technical societies and universities.

In regard to my family, I have been married to a wonderful lady for over 40 years, and we have two daughters. I have been extremely lucky that my wife understands and has always been extremely supportive of my volunteer activities at the society level,

as well as university level. Remarkably, neither of my daughters has pursued careers in the world of physical sciences and engineering!

**Editor:** What have you been doing lately?

**Bill Chen:** I am working for ASE, which is a global company in the area of Assembly, Packaging, Material and Test services. I hold the position of Senior Technical Advisor. While I am based in the ASE US offices, I travel frequently on international business. Prior to joining ASE, I was Director and Principal Research Fellow at the Institute of Materials Research and Engineering in Singapore. I have been in this industry for many years and along the way, I have written papers, book chapters, and presented at technical conferences. One of my other main industry interests is the ITRS Assembly & Packaging ITWG, where I currently serve as co-chair. Earlier in my career, I was active in ASME, particularly in the early days of the Electrical and Electronics Packaging Division of ASME. I am a Fellow of ASME, as well as of IEEE.

**Editor:** How did you get into the field of electronic packaging, and can you tell us something about things you did along the way?

**Bill Chen:** Upon completing my PhD research at Cornell University, I joined IBM in Endicott New York. My interest back then was in the physical modeling and reliability simulation of miniature electromechanical components. And this work naturally led to modeling and reliability studies of microelectronic packaging components. In order to understand the motivation behind these modeling and simulation studies, I decided that I must learn about the business of design, materials, processes, and manufacturing. That is how I got into the field of electronic packaging. Fortunately for me, there were many good people at IBM who were willing to share with me what they knew and what they did not know. Of course, the most important part in engineering is to understand what one does not know. I had many great teachers who shepherded my entry into the field. I learned finite element methods, which, at the time, were new tools for the aerospace industry. We initiated a couple of internal workshops and taught ourselves on how to apply finite element methods to microelectronic components, including IC devices. Today, that is history.

As I mentioned previously, I have grown up together with the advancement of technologies. One thing that I have learnt is that the fundamentals of science and technology do not change. What are constantly changing are the applications and ground rules for these applications. For example, when I started in IC Packaging at IBM, I worked on solder fatigue for flip chip. Now, despite the time that has elapsed, it is still a very important subject, although there is now growing interest in lead-free solders, WLCSP, and BGA, in addition to flip chip. In the late 70's, I wrote a paper on the stress distribution between an IC device and a flexible substrate with a layer of adhesive in between arising from their different thermal expansion characteristics. This topic is still of interest today but with different materials and geometric dimensions.

**Editor:** The CPMT has been around for many years, with focus on the advancement of electronic components, packaging, and manufacturing technology. What is your vision for the society?

**Bill Chen:** Elsewhere in the Newsletter, I have talked about my vision for CPMT. Here, perhaps, I would like to speak more at a personal level. We are a professional Society. I joined CPMT because at CPMT conferences and CPMT chapter meetings, people speak the same technical language, and worry about the same technical issues, and read the same technical journals. We share common interests and have a common bond between us. We are of the same professional community. In the same way, IEEE is a larger community of which CPMT is a subset.

We put great emphasis on globalization because this natural base for CPMT is expanding globally throughout North America, Asia, and Europe. We put the same great emphasis on conferences, publications, education, and technical committees, as well as the membership developments for our members in whatever parts of the world they happen to be in. We all need to sharpen up our own professional portfolio for the fast changing technology and industry landscapes, and CPMT is here to help us.

**Editor:** What do you think of the CPMT "brand"?

**Bill Chen:** IEEE is very well known. The goal is for CPMT to build its brand presence in the industry. This will help our members receive professional recognition, as well as provide linkage to top executives in the industry in order to help them realize the importance of our profession and professionalism for their companies.

**Editor:** CPMT is truly an international organization. What advice can you give our members in this era of globalization?

**Bill Chen:** I consider globalization to be a key consideration for CPMT. Our industry is always changing, and while we are a global industry, over the last few years the globe has become very small and in many respects, the term "global village" could be applied to us. Despite our differing specialties and geographical locations, we have one thing in common – our profession and our technology. And it is up to us to take ownership to navigate the streets of our global village.

Previously, our member's network was confined within the company or within a city, but now it needs to be truly global. Through the power of the internet, global networking is increasing by leaps and bounds. Broad availability and use of the CPMT resources is an important goal for us.

**Editor:** As we are all aware, the packaging industry is extremely volatile so how would you advise an engineer considering a career in this area?

**Bill Chen:** Earlier in my career, I recognized the importance and became a strong proponent of the development of university education and research in microelectronic packaging related disciplines. The global student community of today contains tomorrow's pioneers. Therefore, it is paramount that they are provided with the best resources to help them develop their careers. There are always challenges and rewards with any given profession. The packaging industry is at the base of many other industries such as automotive, communications, medical, consumer, and others. Being in the packaging profession, sometimes volatility is an advantage. There are many possible paths for a career in this area, but it is very important that first one has to learn to fully

adapt for change. CPMT is changing as well, to help our membership in this respect.

**Editor:** What book are you currently reading?

**Bill Chen:** Actually, I am currently reading two books. The first is “The World Is Flat: A Brief History of the Twenty-first Century” by Tom Friedman. I think this is a New York Times Best seller. The second is “Seeing What’s Next: Using Theories of Innovation to Predict Industry Change” by Clayton M. Christensen, Erik A. Roth, and Scott D. Anthony. I like to read books during airplane travel so I particularly like those books where one can read a chapter or two then put them down, and come back to them later. I also like to read mystery books. Unfortunately, a compelling storyline often means that one must read the entire book in one sitting. I really dislike having to jump to the last page but sometimes I can’t help it!

---

## Interview with Paul Wesling, CPMT Society Vice President of Publications.....

By Debendra Mallik, Associate Newsletter Editor

**Editor:** Tell us a little about yourself and your family.

**Paul Wesling:** I grew up in California, and started my high school education when Sputnik was launched – this event led to major improvements and a strong focus on science and technology in our educational system in the USA. My whole career has been in the San Francisco Bay Area, where I always felt there were hundreds of companies at which I could work, so long as I kept myself current and useful. This proved to be true. One of our sons is a civil engineer in Bishop, CA, and the other is a construction manager for large buildings and hotels in Los Angeles. Between them, we now have 6 grandkids. Some of my hobbies are backpacking in the Sierra Mountains, fly-fishing, sailing, playing my guitar, and ham radio (KM6LH and K6BSA).

**Editor:** How did you get involved in our field, and what has your career been like?

**Paul Wesling:** As is likely true for most engineers involved in packaging and assembly, I was first trained in non-packaging fields, with a BS in Electrical Engineering and an MS in Materials Science, both from Stanford. This turned out to be a good combination, and my interest in “how things work” and how to improve them led me into R&D, reliability, and then manufacturing engineering and system integrity, and I ended up on a multi-chip module project at Tandem Computers. My service there went for 17 years, and I retired a few years ago from Hewlett-Packard (which had acquired Tandem). I like remaining active in the profession, so Gail and I are at several conferences each year. Behind the scenes I enjoy being CPMT’s webmaster and guiding the volunteers who make our publications so successful.

**Editor:** What do you see as the needs of our members around the world, and in what direction are you taking CPMT in the short and long term?

**Paul Wesling:** Short-term I’d like to find better ways to communicate to not only our members but to all practitio-



Paul and Gail Wesling on a hike in the German Alps while at the SPI Workshop in 2005. Paul represents the CPMT Society and hold Editors’ Meetings at several events each year.

ners in design, materials, reliability and modeling of packaging, and in assembly and manufacturing. It’s difficult for today’s engineer to keep current. Our conferences and professional-development courses provide a chance to meet with peers, learn new approaches and developments, and stretch our knowledge base. For those who can’t attend, we often have summary or profile articles in the CPMT NEWSLETTER, and all the papers are available in the XPLORE on-line database, for download. With today’s search engines, it should be easier to find pertinent information. I also want to begin profiling some of the best journal papers for our members, for their awareness. These papers often cover subjects that will be hitting researchers and practitioners over the next few years, and we need to be aware of these solutions and directions.

Longer-term, I’d like the CPMT Society to direct its primary focus to all practitioners in our fields of interest – not only those who choose to join. Many engineers and academicians have full access to all of our conference and journal papers without joining the Society, and they (and their companies) are happy to pay non-member rates at conferences or for Proceedings. We need to expand our services to these people, so that everyone in the profession can share directions and results. The challenge is finding out how to do this. My hope is that we can get most of them onto our ListServ email list and make the PDF version of this NEWSLETTER available to them each quarter. Perhaps we can count on members to encourage co-workers to get on our DList!

**Editor:** Where could you use help from members?

**Paul Wesling:** I could use lots of help. For example, if someone has capabilities in software and creating multimedia, I’d like a person or team to help authors convert Conference presentations into streaming audio with GIFs of slides, so that many more engineers can view the conference talks later over the internet (from our CPMT website) and hear what the authors want to tell us. This can get to thousands more people than were able to attend that session at the conference. Perhaps we could convert the introductions of these talks into a series of Pod Casts or RSS feeds, for our technologists.

I want someone to focus on helping us adopt “groupware” that CPMT could use to bring together small communities of practitioners (such as our Technical Committees), on an asynchronous and virtual basis, for counsel and sharing. I’m also looking for knowledgeable specialists who can find and summarize the “most important papers” in their particular specialty over the past 20 or 30 years, and then write a review article profiling them for our journals; this can be a great help to grad students starting project research, to engineers wondering “where to start” with a problem

or project, and for authors wanting to add the correct references to their papers. This is the internet equivalent of the “compendium” books of compiled papers that we used to publish occasionally.

I know that it’s hard these days to find extra time to help develop the profession. But we all take advantage of what we develop in common, and I think it’s part of each engineer’s professional responsibility to help in some way – maybe at the local Chapter level, or with a conference, and perhaps by helping me with our Society’s web presence and services, or with our journals.

**Editor:** What would be your advice for career growth to engineers who are in or entering this field?

**Paul Wesling:** Ours is a particularly challenging field, since it is so interdisciplinary. An electrical engineer new to our fields needs quick updates in materials, failure modes, thermal modeling, and processing. A mechanical engineer must develop background in signal integrity and interconnects, time-of-flight issues, and assembly. The materials engineer has similar “blank spots” that need to be filled. And we all need to understand the chemistry and properties of nano-level materials, the impact of MEMS/NEMS, and the integration of photonics, biotechnology and bio-compatible devices. These will be markers for careers in the future.

So the secret to being successful in the CPMT fields is good teamwork. The engineer must develop relationships with those in complementary specialties – this peer networking is critical. Some of this can happen within a university or company, but much can be done through local CPMT Chapters and by participating on Conference program committees. Companies have a hard time understanding that their engineers need to spend a little of their time working with others across the profession in order to stay fresh and keep contributing at a high level.

**Editor:** What’s a good book you have read recently?

**Paul Wesling:** Ah, that’s a good question! I’m reading Making Silicon Valley, by Christopher Lecuyer. It has an intriguing hypothesis – that the key development that led to Silicon Valley’s success was when a bunch of Hams (amateur radio operators) weren’t satisfied with available transmitting tubes (back in the ‘30’s) so they developed new manufacturing processes to get around RCA’s patents. This advanced vacuum equipment, processing techniques, and infrastructure allowed Shockley and others to establish the first semiconductor companies here, rather than on the East Coast of the USA, which is what should have happened. Of particular interest to CPMT’ers: our focus on manufacturing technology is more important than we might think. Look for a book review in the near future ...

**Editor:** Thank you, Paul.

---

## ***IEEE Fellow Nomination Process (Continued from Page 1)***

“The grade of Fellow recognizes unusual distinction in the profession and shall be conferred only by invitation of the Board of Directors upon a person of outstanding and ex-

**March, 2006**

traordinary qualifications and experience in IEEE-designated fields, and who has made important individual contributions to one or more of these fields.”

The total number selected in any one year does not exceed one-tenth percent of the total voting Institute membership. For the last few years about 250 new Fellows have been appointed out of about 600 nominations. CPMT averages about 5 new Fellows a year. We have more than 100 Fellows in our current Society membership of 3000.

In addition to professional distinction, the qualifications an IEEE member needs before being nominated are:

Must be a senior member at time of nomination

Must be current in dues (yes, even distinguished engineers forget to renew)

Must be a member for 5 years (Affiliate member does not count)

Nominator must get all forms to IEEE web site by March 1<sup>st</sup>

Through this year one could download the forms, fill them out, and mail them to IEEE headquarters. For the coming year the system will be completely electronic, working from the IEEE web site. The new web site is not yet activated for new nominations but in a few months perform a search on “Fellow nomination” from the new [www.ieee.org](http://www.ieee.org) page and you will get the complete process instructions.

If you know someone who qualifies for the Fellow level you can be a nominator. You do not need anyone’s permission. If you need more guidance than is on the IEEE web site you can contact anyone on the CPMT board of Governors or talk to Rao Tummala or Dave Palmer on the Fellow Search committee (see contact information on page 2).

The best steps to success are:

1. Have the Fellow candidate write an extensive resume and list all publications and presentations they have made. With this information you complete the IEEE Fellow nomination form on the web (but make a copy that you can send to potential references). It is usually important to focus on the several technical and organizational contributions that distinguish the candidate in their field. This is typically better than to list only a thousand small contributions that total a lot but did not make an obvious big difference in any technology or organization.
2. Line up between 5 and 8 Fellows in related fields that know of the candidates work or can quickly appreciate it. For example, if the candidate contributed in thermal management, there are a number of Fellows in CPMT that would be ideal for reviewing the nomination.
3. Push everyone to submit everything in February at the latest. About half the nominations miss the deadline and must wait for the next cycle. As the nominator you will have access to the IEEE Fellows Application database and be able to see which references have yet to be submitted.
4. Let C. P. Wong on the CPMT Fellows Review Committee know that you are working on a nomination so he lines up enough society reviewers.

Once a nominator has done their job, the work load passes on to C. P. Wong’s committee. They review all the nominations submitted in the name of the CPMT Society. All nominations must go through a Society or Council. At this point it is important to

have a nomination form that clearly states the candidate's service to IEEE, the Society, and the profession. A member that has spent many years organizing CPMT conferences or producing our publications has a natural advantage in the process of winning a professional award compared to an equal technical contributor but a non-participating member.

In a typical year the Fellow review committee will score and rank about 10 nomination packages and forward them to the IEEE Fellow committee. Historically our submitted nominees have about a 50% success rate. Submitting someone for a series of years is common and should not be considered bad luck by either the nominator or the candidate.

The process takes typically about 20 hours by the candidate, 30 hours by the nominator, and 5 hours by each Fellow reference. CP's team spends many days in the process trying to strengthen every package and to get the right feedback to the nomination.

The Fellow Level recognition is among the highest in our engineering profession. Universities and Companies proudly state the number of Fellows in their staff. As CPMT Society members read the list of Fellows they nod knowingly as they see name after name of admired peers. If your time has come, start the nomination process.

## CPMT Fellows

Current in Dues as of March, 2006

Submitted by Marsha S. Tickman, Executive Director

Cristina Amon	Yasuhiro Ando	Inder Bahl
Henry Baltes	Diana Bendz	Gary Bernstein
David Blackburn	William Brown	L. Burrage
C. Campbell	Andreas Cangellaris	Zoltan Cendes
Yan Chan	Rajen Chanchani	Harry Charles
William Chen	Kenneth Clarke	Evan Davidson
Alina Deutsch	Charles Eldon	Aicha Elshabini-Riad
Irving Engelson	Leonard Feinstein	Wolfgang Fichtner
Paul Franzone	Philip Garrou	Ronald Gedney
Randy Geiger	Stanley Gershwin	Barry Gilbert
Bernard Gordon	Dimitry Grabbe	Martin Graham
Aditya Gupta	Ronald Gutmann	George Harman
J. Harnden	Erik Heijne	Eric Herz
J. Hilibrand	Todd Hubing	K. Irani
Rolf Jansen	R. Wayne Johnson	Nan Jokerst
George Katopis	Ravindhar Kaw	Jorma Kivilahti
Harry Kroger	R. Lafferty	Kanneth Lakin
John Lau	Chin Lee	Johan Liu
Gary May	Michael McShane	James Meindl
Robert Mertens	James Morris	George Moschytz
Arthur Murphy	Khalil Najafi	Wataru Nakayama
Michel Nakhla	Luu Nguyen	Istvan Novak
Kanji Otsuka	David Palmer	S. Pookaiyaudom
W. Arthur Porter	John Powers	Karl Puttlitz
Herbert Reichl	Hugh Ross	A. Ruehli
Leonard Schaper	John Segelken	Gustave Shapiro
B. Siegel	Nihal Sinnadurai	Paul Slade
John Stafford	D. Strain	Toshio Sudo
Madhavan Swaminathan	Tasuku Takagi	Stuart Tewksbury
W. Trybula	Leung Tsang	Tseung Tseng
Rao Tummala	Yonhua Tzeng	Ifeanyi Ume
Jacobus Vanwyk	Kikuo Wakino	Mauro Walker
Andreas Weisshaar	Paul Wesling	O. Winn
Ingo Wolff	C. Wong	Ralph Wyndrum
Naoaki Yamanaka	Qi-Jun Zhang	

## IEEE Senior Membership

Dr. Vasudeva P. Atluri

IEEE CPMT Society Board of Governor and Newsletter Editor

Grade of Senior Member is the highest for which application may be made and shall require experience reflecting professional maturity. Candidate should be an engineer, scientist, educator, technical executive, or originator in IEEE designated fields. Candidate shall have shown significant practice for at least ten years and shall have shown significant performance over a period of at least five of those years.

Benefits of IEEE Senior Membership Include:

- The professional recognition of your peers for technical and professional excellence.
- An attractive fine wood and bronze engraved Senior Member plaque to proudly display.
- Up to \$25.00 gift certificate toward one new Society membership.
- A letter of commendation to your employer on the achievement of Senior member grade (upon the request of the newly elected Senior Member.)
- Announcement of elevation in Section/Society and/or local newsletters, newspapers and notices.
- Eligibility to hold executive IEEE volunteer positions.
- Can serve as Reference for Senior Member applicants.
- Invited to be on the panel to review Senior Member applications.

For additional information including requirements and application process refer to IEEE Senior Member Program website located at [www.ieee.org/organizations/rab/md/smprogram.html](http://www.ieee.org/organizations/rab/md/smprogram.html). Contact representatives of the section or society you belong to for any further assistance and suggestions.

## New CPMT Senior Members

Submitted by Marsha S. Tickman, Executive Director

Congratulations to the following CPMT Society members for achieving Senior Member status after December, 2005:

Buenaventura Section:	James Schlaffer
Dayton Section:	Ronald Coutu
Germany Section:	Hubert Harer
Milwaukee Section:	Jeffrey Kautzer
Northwestern Subsection:	Janice Danvir
Orange County Section:	Wei Koh
Phoenix Section:	Henning Braunisch
	Sankaranarayanan Ganesan
	Altaf Hasan
	Praveen Jain
	Xuejun Fan
Santa Clara Valley Section:	Kyung Oh
	Hao Shi
	Xingchao Yuan
	Ji Zheng
Singapore Section:	Zhenhai Shao
U.K. & Republic of Ireland Section:	Roy Ediss



## Workshop Reports

### EMAP 2005

Mami Yamashita, Secretary

Dear Participants of EMAP 2005,

Thank you for joining the Conference once again. I have uploaded some of the pictures taken during the conference and the tour. Please take a look at the album and if you have any additions, please feel free to send me. I will be happy to work with them.

[www.sms.titech.ac.jp/emap2005/album/album.html](http://www.sms.titech.ac.jp/emap2005/album/album.html)

The pictures of the general sessions are not in the order of the session program. I am sorry but I was just incapable of doing that! Please look for and find yourself.

Season's greetings and best wishes for a prosperous New Year!!

With best regards,

Mami Yamashita, Secretary  
EMAP 2005 Secretariat

(See the Call for Papers for EMAP'06 in Hong Kong,  
December 11-14, 2006, [later in this Newsletter](#) )

---

## Chapter News

### Region 10 Chapter Activity Round-up

By Dr. P.B. Parikh, Region 10 News Coordinator

#### *Singapore Chapter:*

Dr. Wilson Tan, the newly elected chair of the chapter, has reported that the Singapore Chapter has successfully arranged four Technical talks as listed below during this quarter:

- (a) **Wire Bonding in Microelectronics with emphasis on Cu-Low K**  
George G. Harman, Fellow IEEE, IMAPS, and NIST Fellow-Emeritus
- (b) **Lead-Free Solder Materials And Reliability Performance**  
Dr John Pang, Nanyang Technological University, Singapore and Dr Rainer Dudek, IZM, Berlin, Germany
- (c) **Drop Impact Modeling and Testing for Handheld Electronic Products at Board and System Levels**  
Dr. Tong Yan Tee, STMicroelectronics, Singapore, Dr. Chwee Teck Lim, National University of Singapore, and Dr. Jason Wu, Nokia, USA
- (d) **Wafer Level Packaging**  
Dr. L. T. Nguyen, National Semiconductor Corp., and Dr. Kripesh Vaidyanathan, Institute of Microelectronics, Singapore

The chapter has also reported regarding the 3-day 7<sup>th</sup> Electronics Packaging Technology Conference (EPTC 2005) successfully organized on 7-9 December 2005 at the Grand Copthorne Waterfront, Singapore. The conference on 8<sup>th</sup> to 9<sup>th</sup> December was attended by a total of 265 delegates from 19 countries. In the keynote session, Dr Robert Darveaux from Amkor Technology discussed the "Current Trends and

March, 2006

Critical Issues in Flip Chip Packaging" and Dr Chiang Shiuh-Kou from Prismark, gave an insight on "The Global Packaging Business and Technology". An invited talk on "CPMT and EPTC: A study in Symbiosis" was delivered by CPMT representatives Dr William Chen, Prof Klaus-Jürgen Wolter and Dr Ricky Lee during the luncheon talk on 8<sup>th</sup> December 2005.

Four professional short courses were also organized in conjunction with the conference, namely (1) Wirebonding in Microelectronics with Emphasis on Cu Low K, (2) Lead Free Solder Materials and Reliability Performance, (3) Drop Impact Modeling and Testing for Handheld Electronic Products at Board and System Levels, and (4) Wafer Level Packaging. A total of 87 delegates participated in the short courses on 7 December 2005. This is by far the best turn-out for any EPTC-organized short courses.

The chapter has also planned the 13<sup>th</sup> International Symposium on the Physical and Failure Analysis of Integrated Circuits (IPFA 2006), to be held on 3 to 7 July 2006 at the Meritus Mandarin Hotel at Singapore.

Join us at the 8<sup>th</sup> EPTC, 6-8 December, 2006, at the Pan Pacific Hotel, Singapore. See the Call for Papers [later in this Newsletter](#).



Members of IAB and IEEE CPMT at EPTC 2005

From left to right : Dr Mahadevan, Dr William Chen, Prof Andrew Tay, Swee Yong Khim, Dr C.P. Wong, Rolf Aschenbrenner, Dr Ricky Lee and Dr Lim Thiam Beng



Dr. Ong and some of the Executive members of Chapter and IPFA at the farewell function.

#### *India Council Chapter:*

India council chapter executive committee has been reorganized in December 2005. Prof. M. M. Shah has taken over as chairman for the chapter and Dr. P. B. Parikh has agreed to extend services as secretary/Treasurer for the chapter.

## *From Your Newsletter Editor's Desk*

### **Answers to 10 Questions by the Two Candidates for 2007 IEEE President-Elect**

Jacek Zurada

IEEE TAB Newsletters Committee Chair

Past President of the Computational Intelligence Society

Past Editor in Chief, IEEE TNN

March 19<sup>th</sup>, 2006

The IEEE Board of Directors selected Lew Terman and John Vig to be the two candidates for 2007 IEEE President-Elect. In an effort to better present their platforms and in connection with the upcoming elections, Lew and John, assisted by the TAB Newsletters Committee, have prepared for the readers the following "Answers to 10 Questions by the two Candidates for 2007 IEEE President-Elect".

Lew Terman ([www.terman.org](http://www.terman.org)) can be contacted at [l.terman@ieee.org](mailto:l.terman@ieee.org), and John Vig ([www.JohnVig.org](http://www.JohnVig.org)) can be contacted at [j.vig@ieee.org](mailto:j.vig@ieee.org).

#### **QUESTION 1: What are IEEE's strengths?**

**Lew Terman:** The volunteers are perhaps the most important strength; it is their enthusiasm, expertise, and time which is key to the success of the Institute.

Another major strength is the IEEE's generation and dispersion of high quality Intellectual Property, including archival publications, conferences/meetings, and standards. It is this IP which produces the revenue streams that financially enables the IEEE and create the information flow which is so valuable to the technical community. The IEEE publishes over 30% of the published material in IEEE's fields of interest, and its conferences/meetings around the world enable rapid dispersal of new results, as well as networking and face-to-face discussions.

A third major IEEE strength is globalization: RAB's structure of geographical based entities extends around the world in over 150 countries, allowing networking and the interchange of technical information at the local level.

Fourth, the IEEE has recovered from the recent downturn to a strong overall financial position. Reserves are at an all-time high, though some problems remain for specific O/Us. The financial performance of the Societies and Councils has been very important.

Finally, the IEEE has an excellent staff supporting the volunteers and working with them for the Institute and its goals.

**John Vig:** The IEEE's main strengths include:

1) That we are a non-profit membership organization; we have ~50,000 volunteers who contribute to the IEEE's >350 conferences, >100 journals, >300 sections, >900 standards, >40 societies and councils, etc.

2) The breadth and quality of products & services: publications, conferences, workshops, standards, educational products and services, sections, chapters...

3) Our diversity – i.e., that we have ~360K members, in 150 countries. The membership includes not only engineers but also computer/IT professionals, scientists...; men and

women; members of all cultures..., and that our activities transcend national borders.

#### **QUESTION 2: What are the major challenges facing the IEEE?**

**Lew Terman:** Membership has been essentially flat in recent years, and the number of higher grader members has been decreasing. A major problem has been the retention of new graduates, now below 25% three years after graduation. Society membership continues to decline, and the fraction of IEEE members without society membership is now over 43%. Much of this can be attributed to a perceived lack of value of IEEE membership relative to its cost. Increased support of member career development is important. IEEE membership will be 50% in Regions 7-10 within 10 years with current trends; the implications (and opportunities) need to be thoroughly examined. The long-term impact of IEL on membership could become significant.

Open Access is the major long-term question for publications - if all publications are available for free on the web, the IEEE publication business could collapse. Publication timeliness has been a problem, new publications are launched too slowly, and there is a strong need for practical publications to engage the practitioners/"bench-top engineers". Finally, there is the impact of going to full electronic publishing and on what schedule it might occur.

While the overall IEEE financial position is good, there are specific units with problems; further reduction of the infamous Infrastructure Charge is needed through continual evaluation of the efficiency of our operations. With the continuing growth of reserves, long term financial plans/goals for the reserves and their use must be developed.

Finally, the IEEE needs to react to new technologies faster to claim leadership positions in these technologies as they emerge. We must continue our search for effective and fair governance.

**John Vig:** How to provide sufficient value to justify the membership dues is a major challenge. A growing number of members who work for institutions which provide "free" access to IEEE's publications and conferences are asking, "I get everything I want from IEEE for free, so, why should I be a member?"

About 80% of IEEE members don't read IEEE journals on a regular basis. "The articles are by academics, for academics." Half of IEEE members work in industry. Providing more practical content without diluting the quality of our publications is a major challenge.

Half of IEEE's revenues result from the sale of publications. "Open access," the worldwide movement to disseminate scholarly research literature online, free of charge, threatens these revenues.

#### **QUESTION 3: What are the major changes IEEE needs to be making?**

**Lew Terman:** Membership: increase (and actively market) membership benefits around the world, broaden the base of membership such as aggressively moving into software, services, applications and solutions. Follow up the China initiative with similar efforts for India and Eastern Europe.

Publications: establish a faster track for new publications, pilot new publications that are more practically-oriented, and establish

a reward system for reducing the submission-to-publication time. Develop the best search capability for technical material, and make it a membership benefit.

**Education:** the *Expert Now* program for continuing education is off to an excellent start; aggressively push it and make it available to members.

**Financial:** drive good financial behavior for Operating Units with reserves by giving them more access to those reserves – as the ratio of the O/U's reserves to expenses increases, allow access to an increased percentage of the reserves. Continue to work on decreasing the Infrastructure Charge and increasing revenues, though not at the cost of making IEEE's prime goal increased surpluses/reserves. Develop a long-term financial plan/goals for the IEEE reserves.

**Governance:** the current governance structure is not egregiously broken; continue to work towards streamlining operations and governmental efficiency.

Finally, work across the IEEE major Boards to establish a spirit of working together, understanding each others problems, and working with staff on identifying and solving tactical and strategic problems.

**John Vig:** To improve the IEEE's agility, e.g., with respect to entering new technologies, I have proposed that we establish an IEEE Venture Capital Fund. Any person could propose an idea, and, if the idea is judged to be worthy, receive up to \$100,000 to implement, or show the feasibility of, the idea.

To provide practical content, I have proposed that we create a new category of peer-reviewed publications, "application notes" - which would include "how-to's," and case studies; and that we digitize many of the ~600 IEEE Press books and make them available to members, and members only, for free.

The IEEE should be more willing to take prudent risks, and it should be more willing to terminate unsuccessful activities.

To explore new ideas, the IEEE should experiment more – with new membership models, dues structures, publication models (e.g., new forms of peer review), etc.

The IEEE needs to improve its communications with members. The Institute should become a real newspaper, i.e., it should report both the good and the bad, and it should publish controversial views, even when such views may displease the leadership.

The IEEE should join with other engineering and scientific organizations to establish a public relations campaign to improve the image of engineering and science.

#### **QUESTION 4: What are some of the important challenges facing IEEE as a publisher in service to its membership?**

**Lew Terman:** Issues raised by Open Access will need to be anticipated and managed. A major implication is to at least maintain the revenue stream which our publications generate. IEEE needs to help members navigate the mass of data available from IEEE, other technical publications, and on the

web. Practical publications need to be developed with the collaboration of RAB and TAB. Goals for article publication timeliness must be set, and rewards established for publications to meet or exceed the goals. Establish a fast approval track for new publications. Maintain the importance of peer review. Keep monitoring the possibility of going to all electronic publishing, and establish when or if it should occur well before any critical point occurs.

**John Vig:** Open access, the worldwide movement to disseminate scientific and scholarly research literature online, free of charge is a serious challenge because half of IEEE's revenues result from the sale of publications. Google, at [www.scholar.google.com](http://www.scholar.google.com), and similar services, now make it easier to find the free copies of publications. Papers can be read without having to pay the publishers.

Delayed open access, e.g., making publications open access two years after publication, would not be as damaging. It would allow the IEEE to maintain most of its publication revenues while fulfilling its mission of being "for the benefit of humanity and the profession."

A frequently heard criticism of IEEE publications is that they are primarily "by academics, for academics;" they are not useful for practitioners. About half of our membership is from industry. If our publications are not useful for the majority of our members, then we have a serious problem.

I have proposed three solutions to this problem. One is to ask authors to provide, voluntarily, a "practical impact statement" with their papers. The second is to create a new class of peer reviewed publications, "application notes," and the third is to digitize IEEE Press books and make them available to the membership.

The mean time between an author's submission and the date of publication of an article is too long for some of our journals; the delay for five of our journals has been >120 weeks. This must not be allowed to continue, and it need not continue, as evidenced by the fact that the mean is <50 weeks for 31 of our journals.

#### **QUESTION 5: Do you see IEEE in future years as an organization based on its strong membership base, or do you foresee other models?**

**Lew Terman:** IEEE should remain a membership-based organization. Membership is critical – it is the members through whom we serve our technical communities, and who provide the volunteers that are critical to the success of IEEE. Members also provide a means of measuring how relevant we are to the technical world, and provide the mechanism for engaging emerging technical and geographic areas.

**John Vig:** I see the IEEE continuing to be a membership-based organization - with its tens of thousands of volunteers and its membership diversity as its pillars of strength.

I do, however, see a need to experiment with membership and dues models. Some members, for example, may be willing to receive Spectrum and The Institute electronically if the dues were lowered by the costs of producing the paper copy of those publications. We have >\$160M in reserves. Therefore, we can afford to experiment.

The success of our IEEE Electronic Library (IEL) is hurting membership recruitment and retention. (IEL subscribing institutions, which include many of the largest universities and corporations, provide “free” access to IEEE publications.) I hear more and more “I get everything I want from IEEE for free, so, why should I be a member?” Therefore, another experiment I would propose is to offer reduced dues to those working or studying at a few IEL organizations and measure the effects on membership numbers.

**QUESTION 6: What changes in IEEE would you advocate in response to quick industrialization and potential IEEE presence in large Asian countries?**

**Lew Terman:** The two major Asian countries of interest are quite different in technical environment and social structure. I believe the current China initiative is appropriate; we need to understand the environment and the current approach seems a good first step. We need a deeper understanding of the specific needs and opportunities and how to involve that community to effectively stimulate IEEE membership and volunteerism.

India is also a key growth area in the 21<sup>st</sup> century, and currently has more IEEE members than any country outside the US. We need to understand why they join, and focus on the appropriate member and technical services to support their interest. India has a strong university structure with which we should be working.

**John Vig:** IEEE’s presence in large Asian countries is actual, not just “potential.” For example, in 2005, we held 59 conferences in China, and a total of 129 in China, India, Japan and Korea. Our publication sales, in China alone, amounted to ~\$5M in 2005. Total sales to the four countries was ~\$20M. In 2005, our combined membership in these four countries was ~45K.

Although the IEEE has made inroads in China and India, it is a long way from realizing the potential presence in these and other countries. Membership is too expensive for many in Asia, Latin America, Eastern Europe... We need a membership strategy for potential members who can’t afford our dues, not just in Asia, but, throughout the world.

**QUESTION 7: What do you see as the power of the IEEE President and how would you exercise this power?**

**Lew Terman:** The IEEE President has three major responsibilities/opportunities:

a) Running the Board and ExCom meetings effectively, including setting up the meetings. This is important as the members of the governing bodies of the IEEE meet for only a short time, and it is important the meetings be efficient for the most effective interaction.

b) Providing leadership to the Institute: setting directions, establishing committees and study groups to get information and sift through alternatives, work with the staff, work with the IEEE Boards and governance levels. It is in this area that the President can have the most effect. I would focus on bringing the various groups in IEEE together, and on listening to their input, getting an open airing of issues and sug-

gested solutions, and generating and following through on new ideas.

c) “Showing the flag” around the world, to both IEEE geographies/groups and non-IEEE entities - geographical, technical and political. The interactions with IEEE groups are very important to generate mutual understanding, and the interaction with non-IEEE entities is important to present the IEEE and the technical community it represents, and to understand their needs, views, and to understand possible opportunities.

**John Vig:** The president’s duties are to: chair the meetings of the IEEE Board of Directors, Executive Committee and Assembly; perform ceremonial functions such as meeting with dignitaries, presentation of awards, opening remarks at conferences, etc.; promote the objectives of the IEEE; and be “the Chief Executive Officer of the IEEE.”

I would make maximum use of the presidency to advocate the IEEE’s agenda, both within and outside the IEEE.

I would set at least one lofty (man-on-the-moon-like) goal for the IEEE, aimed at inspiring and mobilizing the volunteers and staff.

The Board of Directors has been too inward-focused. I would propose the establishment of a council of advisors – consisting of prominent, mostly outside experts and leaders – to advise the IEEE leadership.

**QUESTION 8: In the 2005 IEEE elections, only 14% of the membership voted. What, if anything, would you do to increase members’ participation in IEEE elections?**

**Lew Terman:** I think what we are doing this year is pretty good – talking to the Regions and other entities which invite us (with Q&A sessions where time permits), sending these 10 questions to the Newsletters, participating in the Philadelphia debate and making available recordings of the debate and presentations of the candidate platforms on the IEEE web site, and making additional information available on our personal web sites.

**John Vig:** In 1975-77, when a controversial candidate, Irwin Feerst, ran for IEEE president, 36% voted. In those days, the membership was more involved in IEEE issues than they are today.

Today, the membership is rarely informed of controversial issues. For example, last year, I received reports of meetings where readings from the Koran and Christian prayers were parts of the program. Why not report such events and ask the membership whether or not such religious expressions should be allowed as parts of IEEE events?

“THE INSTITUTE is the newspaper of the IEEE” claims The Institute’s website but, The Institute is more a “house organ” than a newspaper. As president, I would propose to the Board of Directors, and The Institute’s Editorial Board, that The Institute become a real newspaper of the IEEE.

The office holders in IEEE, especially the President and the other members of the Board of Directors, make decisions about matters that are important to the membership and the future of IEEE. Voting in the annual IEEE election is the chance members have to choose the decision makers. With only 14% voting, 7+% of the members can decide the fate of IEEE.

**QUESTION 9: What have been your three most important contributions to IEEE?**

**Law Terman:** In the late 1990's, I was instrumental in the conversion of the Solid-State Circuits Council to the Solid-State Circuits Society. This was very successful; the SSCS is now the 5<sup>th</sup> largest Society in the IEEE, and the Journal of Solid-State Circuits records the highest number of hits in IEL. I served as the first SSCS president elected by the Society.

In the mid 90's, IEEE and TAB were going through financial difficulties. I was appointed TAB treasure, stabilized the situation and improved the communication with TAB, and served a second term as Treasurer.

In 2001, I was on the Board as the bottom fell out of the IEEE financial situation. As part of a team effort, we were able to put in place a number of changes which arrested the slide.

**John Vig:** My three most important contributions are:

The IEEE Sensors Council, i.e., I proposed it, shepherded it through the approval processes, and was elected its founding president, in 1999. In 2005, the Council's journal published 1500 pages, and its conference had >500 registered participants.

Between 1999 and 2002, the IEEE's reserves declined >\$50M (>40%), due, in large part, to the decline in the value of IEEE's investments. Up to this point, the IEEE had no formal investment policy. I wrote the first draft of the Investment Operations Manual (IOM), then worked with in-

vestment professionals, volunteers and staff to finalize it and get it passed by the Board. Contained in the IOM is an investment policy which has reduced the risks and increased the transparency of IEEE's investments.

I brought what is now the IEEE Int'l Frequency Control Symposium into the IEEE. I negotiated the takeover of this conference by an IEEE society (UFFC). This conference is now the premier international conference in its field.

**QUESTION 10: What would be your single and most recognized contribution that will distinguish your IEEE Presidency from those of others?**

**Law Terman:** I would like my presidency to result in the elimination of any silos between IEEE operating units, and attacking IEEE problems with coordinated efforts across IEEE.

**John Vig:** The president under whose leadership innovation flourished in IEEE.

**Watch for the June, 2006, Newsletter Issue**

- Interviews with CPMT Officers
- Reviews of new Lead Free Books
- CPMT Society 2006 Award Winner Profiles

Send Your News Articles to the Editor at [nsltr-input@cpmt.org](mailto:nsltr-input@cpmt.org)



**Institute of Electrical and Electronics Engineers, Inc.**  
**Phoenix Section**  
**Components, Packaging and Manufacturing Technology Society Chapter**  
**&**  
**Waves and Devices Chapter**

*PRESENT AN ALL-DAY WORKSHOP ON*

**Convergence in Communication and Computing**

**Date:** Friday, November 17<sup>th</sup>, 2006

**Time:** 7:00 A.M. – 5:00 P.M.

**Location:** Arizona State University, Tempe, Arizona – ASU Memorial Union (Arizona Room)



**TOPICS**

**Vision – A View of the Future of Convergence**

**Market – Current Status and Future Trends**

**Communication Technology Options and Standards**

**Packaging – Mobile Products and Infrastructure**

**Device Technology – RF, Microwave, Analog, and Base Band / Graphic Processing**

**Panel discussion on the Future of Convergence in Communications**

**Business Model**

**System and Architecture**

**Antenna / Propagation**

**System Integration**

For Additional Information Access [www.ieee.org/phoenix](http://www.ieee.org/phoenix)

# EPEP 2006

October 23-25, 2006  
Scottsdale, Arizona

## Sponsors

IEEE Microwave  
Theory and Techniques Society

The IEEE Components, Packaging and  
Manufacturing Technology Society

## Call for papers (papers due July 10)

The **general subject of the meeting** is the electrical modeling, design, analysis, and characterization of electronic interconnections and packaging structures. Authors are invited to submit papers describing new technical contributions in the areas broadly covered below:

- RF/microwave packaging structures and their electrical performance
- Microwave performance of multilayer LTCC packaging
- MMIC modules and high density packaging
- Experimental characterization techniques EMC/EMI sources & effects
- Prediction/measurement of radiation from on-chip sources, interconnect structures and packages
- Electrical issues in MEMS packaging
- New and innovative interconnect packaging structures and their electrical performance
- Electrical design implications for low cost, high volume packaging
- Signal integrity in mixed signal integrated circuits
- Packaging solutions for one chip radios: design and modeling
- Performance of packaging for automotive radar systems
- Optoelectronic packaging; structure and system applications
- Current and future issues related to on-chip interconnections
- Router friendly models and modeling tools: accuracy & efficiency
- Modeling and design of high speed digital IO circuits: signal propagation and reception
- On-chip power delivery and regulation
- Advances in modeling core switching noise, and design of novel solutions
- On-chip measurement techniques
- Package analysis, including numerical methods
- Electromagnetic analysis tools
- Advances in transmission-line techniques
- Power distribution and package resonance

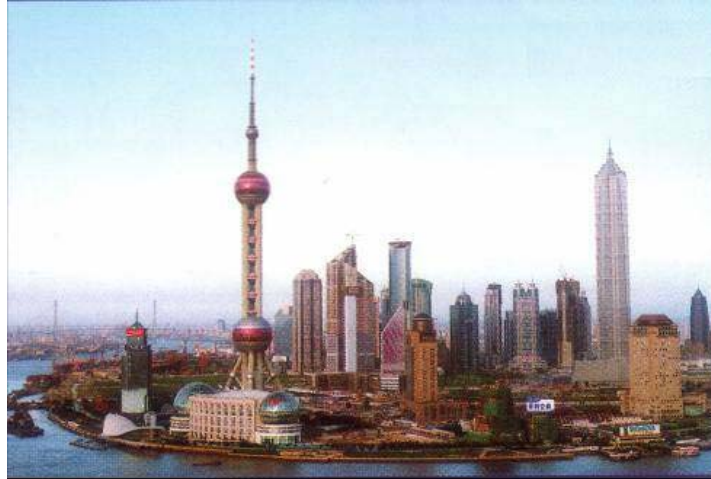
**Conference Co-chairs:** Moises Cases, IBM; Paul Franzon, North Carolina State University

**Conference Web Page:** Detailed information can be found at [www.epep.org](http://www.epep.org)

**Paper Submission:** Information for authors can be found on the conference web page. Electronic submissions of no more than four pages must be received no later than **July 10, 2006**.

**Student Paper Award:** Two awards will be presented to the best two papers submitted by students.

**Short Courses/Workshops:** On Sunday, October 22, 2006, a workshop entitled "Future Directions in Packaging" will be presented and short courses/tutorials will be offered.

**Preliminary program****HDP'06 -- The 8th IEEE CPMT International Conference on  
High Density Microsystem Design, Packaging and Component Failure Analysis****Date: June 26 – 30, 2006****Venue: Yan Chang Campus, Shanghai University, China**

Microsystem design, manufacturing, assembly and packaging technology is playing a key technology for the progress of the microsystems and microelectronics industry in the world. China is not an exception. Therefore, many multi-national companies are establishing new facilities in China for expanding their global business and interests. Following successful previous conferences, we are proud to announce the 8th International IEEE CPMT Symposium on High Density Microsystem Design and Packaging and Component Failure Analysis in Electronics Manufacturing (HDP'06).

**Scope for the Symposium:** The Symposium will cover the following areas and subjects:

- High density design and packaging including micro- and nanosystems, microelectronics and optoelectronics design and packaging, SOP, SOP, SIP, CSP, BGA, Flip-chip, Chip on Board, lead and halogen free, Surface Mount Technology and other novel emerging technology
- High density substrate including integrated passives and active devices
- MEMS and MOEMS design, packaging and assembly
- Microsystems manufacturing issues including cleaning issues, quality control, logistics, repair, process optimization, statistic process controls, ISO compliance, tooling or equipment, early manufacturing involvement initiatives and yield and test innovations used to enhance manufacturing processes or products related to high density substrates, single chip and multichip packaging, chip bumping and integrated component technologies
- Component failure analysis techniques including non-destructive X-ray, ultrasonic microscopy, IR-microscopy etc
- Simulation and modelling for packaging and microsystems and microelectronics manufacturing processes
- Thermal management
- Environmental design and materials development including life cycle analysis and end of life strategy etc
- Cost reengineering, improvements and analysis for electronics packaging processes and products

**Language:** English will be used.

**Conference schedule:**

June 26-27, 2006 Short courses

June 28-29, 2006 Technical program

June 30, 2006 Industrial visit

For further information please contact Peng Sun at [psun@mail.shu.edu.cn](mailto:psun@mail.shu.edu.cn) in Shanghai, China; or [johan.liu@chalmers.se](mailto:johan.liu@chalmers.se) in Sweden.

**See the listing of Workshops, Keynote Talks, session presentations, and registration details on our website: [www.hdp-shanghai.com](http://www.hdp-shanghai.com)**

# Call for Titles & Abstracts

Titles due: May 19, 2006

Abstracts due June 23, 2006

IEEE-CPMT • iNEMI • Georgia Tech Packaging Research Center (PRC) Sponsor the

## Second International Workshop on SOP • SIP • SOC (3S) Electronics Technologies

September 28 & 29, 2006

Global Learning & Conference Center at Technology Square  
84 Fifth Street, Atlanta, GA USA

General Chair: Rao R. Tummala, PRC Director

Technical Chair: Dr. Mahadevan Iyer, PRC Research Director

Program Coordinator: Boyd Wiedenman, PRC

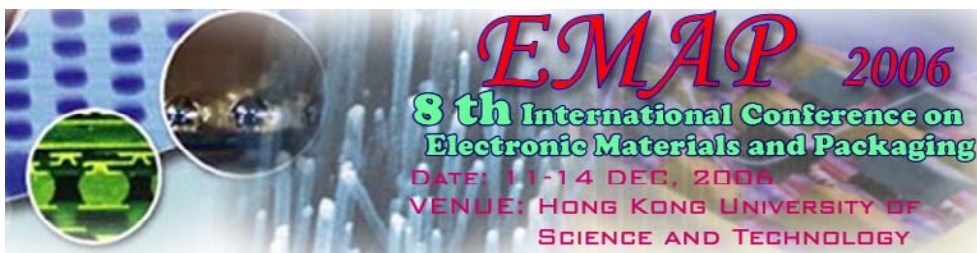
Visit our **Web Page** for the full **Call for Papers**

[www.prc.gatech.edu/3s](http://www.prc.gatech.edu/3s)

### Topics

Mixed signal design and design tools	Embedded digital integration and modules	Embedded optical integration and modules
Embedded RF integration and modules	Multifunction integration and modules	Materials, processes, fabrication and assembly
Mixed signal test	Mixed signal reliability	Stacked ICs and packages
Embedded LTC, organic laminate and Si wafer technologies		Manufacturing
Applications and products in automotive, computing, consumer and wireless		

Please send to [boyd.wiedenman@ece.gatech.edu](mailto:boyd.wiedenman@ece.gatech.edu)



The 8th EMAP conference will be held at Hong Kong University of Science and Technology (HKUST), Hong Kong, **December 11–14, 2006**. The previous seven were held in Singapore (1999), Hong Kong (2000), Korea (2001), Taiwan (2002), Singapore (2003), Malaysia (2004) and Japan (2005).

The EMAP conference will include all fundamental and applied science and technology related to the fields of electronic materials, devices, and packaging. Topics may include, but are not limited to, the following areas:

- \* Materials and Processing
- \* Advanced Packaging
- \* System-in-Package (SiP) and 3D Stacked Die Packaging
- \* Thermal-Mechanical Modeling and Characterization
- \* Sensor, Actuator, and Transducer Technologies
- \* Passive and Active Components
- \* Emerging Packaging Technologies
- \* Electrical Modeling, Characterization, and Signal Integrity
- \* Packaging Technologies for High Brightness LEDs
- \* Quality and Reliability
- \* Optoelectronics / Photonics
- \* Interconnection Technologies

**Kindly submit your abstract by June 30, 2006**

For more details, and the full Call for Papers, visit [www.ust.hk/emap2006](http://www.ust.hk/emap2006)

Coordinate international travel plans to attend one or two other CPMT Society events: **EPTC'06**, 6-8 December, 2006, in Singapore; and **VLSI Chip Packaging Workshop**, Dec. 4 - 5, 2006, Kyoto, Japan.



## CALL FOR PARTICIPATION

10th IEEE WORKSHOP ON

# SIGNAL PROPAGATION ON INTERCONNECTS

Sponsored by the IEEE Components, Packaging, and Manufacturing Technology (CPMT) Society and by the IEEE Computer Society – Test Technology Technical Council (TTTC)

**May 09-12, 2006 "Dorint Sofitel Schweizerhof Berlin", Berlin-Mitte, Germany**

During the last nine years, the IEEE Workshop on Signal Propagation on Interconnects has been developed into a forum of exchange on the latest research results in this area. The aim of this ensuing workshop is to report on the most recent developments in the field of interconnect modeling, simulation and measurement on chips, boards, and packages. The event is also meant to bring together developers and researchers from industry and academia in order to encourage co-operation. In view of the last years' success, the committee is looking forward to the 10th IEEE Workshop on Signal Propagation on Interconnects where world class developers and researchers will share and discuss leading-edge results in the famous and historic city of Berlin, Germany. The social events bundle takes care you'll never forget where you learned about the latest news on interconnects and testing: we are going to have a guided sightseeing tour through Germany's capital city followed by an excellent dinner. The workshop will be held in English. We are looking forward to see you in Berlin.

Main topics of the workshop will include, but are not limited to:

- \* Frequency Domain Measurement Techniques
- \* Modeling of Package & On-Chip Interconnects
- \* Simulation of Interconnect Structures
- \* Analysis and Modeling of Power Distribution Networks
- \* Propagation Characteristics on Transmission Lines
- \* Substrate Effects
- \* Electromagnetic Compatibility
- \* Testing & Interconnects
- \* Time Domain Measurement Techniques
- \* Macro-Modeling
- \* Electromagnetic Field Theory
- \* Guided Waves on Interconnects
- \* Coupling Effects on Interconnects
- \* Radiation & Interference
- \* Power/Ground-Noise
- \* Optical Interconnects

Advance Program and registration information now posted on the website: [www.spi.uni-hannover.de](http://www.spi.uni-hannover.de)

# ITherm 2006

**InterSociety Conference on Thermal Phenomena in Electronic Systems**  
May 30 - June 2, 2006 San Diego, CA, USA

**ITherm 2006** is an international conference for scientific and engineering exploration of thermal, thermomechanical and emerging technology issues associated with electronic devices, packages and systems. It is held simultaneously with the 56th Electronic Components and Technology Conference. One unique feature for **ITherm 2006** is that one entire afternoon session will be dedicated to the Poster Presentations along with the Vendor Exhibits. In addition to paper and poster presentations and vendor exhibits, **ITherm 2006** includes panel discussions, keynote lectures by prominent speakers, and professional short courses.

**ITherm 2006** features original papers addressing the latest developments in research and technology

Thermal Management	Mechanics	Materials
Emerging Technologies: Thermal, Thermomechanical and/or related underlying multidisciplinary issues		
Software Tools & Techniques: Design, Analysis, Simulation		
Panel Discussions	Poster Sessions	

Oral and poster presentations will be featured. The first day of the conference has a series of short courses. Several keynote speeches on topics of current importance by experts in the field will be part of the conference program.

Download the full program and registration information: [www.itherm.org](http://www.itherm.org)

## CALL FOR PAPERS

# 7<sup>th</sup> International Conference on Electronics Packaging Technology

Shanghai, CHINA

August 26 - 30, 2006

## ABOUT ICEPT

Since 1994, ICEPT has been held in Beijing, Shanghai, and Shenzhen, China, every two years respectively. As the only international electronics packaging technology conference organized and supported by Chinese government and relevant authorities, leading industries and academia, ICEPT has attracted many participants from the whole world, covering all the relevant fields of electronic packaging, such as equipment, ICs, packaging, interconnect, Sensor/actuator/MEMS/NEMS, Optoelectronics, LEDs, LCDs, substrates, systems, PCBs and assembly.

**Sponsored By** The IEEE Components, Packaging, and Manufacturing Technology Society  
China Electronics Packaging Society, Chinese Institute of Electronics

### Abstracts are solicited in the following topical areas:

- **System Packaging & Integration**  
(SiP, 3D packaging, integrated systems, heterogeneous integration)
- **Advanced Packaging**  
(BGA, CSP, MCM, flip chip, WLP, Nano-packaging, Cu/low-k packaging, Plastic packaging)
- **Design, Modeling & Tools**  
(modeling and simulation, multi-physics and multi-scale modeling, modeling validation, tools, optimization methods)
- **Materials & Processes**  
(lead-free solders, underfills, adhesives, dielectrics, and embedded passives)
- **High Density Substrate & PCB**  
(dielectric, microvia, photolithography and laser, HDI, MCM board)
- **Microjoining & Assembly**  
(bonding, bumping, reflow, soldering)
- **Surface Mount Technology**  
(screen printing, pick & place, reflow, AOI, novel equipment)
- **"More than Moore" technologies and products** (Sensor/Actuator/MEMS/MOMS/NEMS, LCD & Optoelectronics Packaging, RF, Power and HV, Solid State Lighting, Passive Devices, Nanowire, NCT, Polymer electronics, etc.)
- **Manufacturing**  
(quality, process control, cost analysis, modeling, testing)
- **Reliability and qualification**  
(accelerating testing, analysis, simulation & test)
- **Education and Training**  
(internet based courses, distance learning, training materials)
- **Technology roadmaps**
- **R&D strategy and policy, International Collaboration**

Please submit your abstract online at our website, or send an abstract (500-1000 words) via email to Professor Sheng Liu, [shengliu63@yahoo.com](mailto:shengliu63@yahoo.com). Please include your affiliation, email address, postcode, mailing address, and phone number in your submission.

<b>Important Dates:</b>	May 25, 2006	Submission of abstract
	June 25, 2006	Notification of acceptance
	July 30, 2006	Submission of manuscript

For more information, and updates, please visit [www.ICEPT.org](http://www.ICEPT.org)

## Put your Technology Leadership in Writing!

Publish in our IEEE Transactions. Figures in **full color**; worldwide access to results.  
For more details:

[www.cpmt.org/trans/](http://www.cpmt.org/trans/)

# 8<sup>th</sup> Electronics Packaging Technology Conference (EPTC 2006)

6- 8 December 2006, Pan Pacific Hotel, Singapore

## CALL FOR PAPERS

Mark Your  
Calendar for  
EPTC 2006



### About EPTC

The 8<sup>th</sup> Electronics Packaging Technology Conference (EPTC 2006) is an International event organized by the IEEE Reliability/CPMT/ED Singapore Chapter, sponsored by IEEE CPMT Society with technical sponsorship from IMAPS.

EPTC 2006 will feature technical sessions, short courses and exhibition. It aims to provide a good coverage of technological developments in all areas of electronic packaging from design to manufacturing and operation. It is a major forum for the exchange of knowledge and provides opportunities to network and meet leading experts in the field.

Since its inauguration in 1997, EPTC has developed into a highly reputed electronics packaging conference in Asia and is well attended by experts in all aspects related to packaging technology from all over the world.

### Conference Topics

You are invited to submit an abstract presenting new development in the following categories:

- ❑ **Emerging Packaging Technologies:** Wafer level packaging, 3D integration, embedded passives & actives on substrates, high power modules, SIP and other system integration technologies, bio-packaging, RD-ID and disposable electronics packaging.
- ❑ **Interconnection Technologies:** Gold and copper wire bonding and flip chip (eutectic/lead-free solders) on standard and copper low k wafers, solder replacement flip chip (ICP, ACP, ACF, NCP), under bump metallurgy, microvia and build-up technologies, fine pitch interconnects, nano interconnects.
- ❑ **Manufacturing Technologies:** Sustainable manufacturing processes for environmental and cost improvement. Product/material substitution and recycling. Manufacturing best practices, yield improvement, cost and cycle time reduction, statistical process control.
- ❑ **Materials & Processes:** Advancements in adhesives, encapsulants, underfills, solder alloys, halogen-free materials, dielectrics, ceramics, composites, thin film processes on laminates, nano-materials and processes for packaging.
- ❑ **MEMS Packaging:** Packaging solutions for inertial MEMS - pressure sensors, actuators, microrelays bio-MEMS, RF MEMS - resonators, switches and optical MEMS - switches, crossconnects.
- ❑ **Electrical Modeling & Signal Integrity:** Modeling simulation & measurement for coupling, reflection & switching noise, EMI/EMC analysis on package & subsystems, RF modules, time & frequency domain measurements for advanced modules.
- ❑ **Thermal Characterization & Cooling Solutions:** Modeling & simulation methodology for thermal characterization of advanced packaging, modules & systems. Novel thermal management solutions. Enhanced air & liquid cooling techniques, Hot-spot management.

- ❑ **Mechanical Modeling & Structural Integrity:** Thermo-mechanical modeling. Modeling of delamination, moisture diffusion, hygrostress, drop impact, vibration in modules & systems, measurement of material & interface properties, experimental verification.
- ❑ **Optoelectronics:** Design and simulation of opto-electronic components and modules, development of Gbps and Tbps opto-electronics, photonic interconnects and backplanes, design and development of optical passive components, photonic crystal based devices, development of process and assembly methods for opto-electronic components.
- ❑ **Quality & Reliability:** Component, board and system level reliability assessment, failure analysis, interfacial adhesion, accelerated testing and models, component and systems.

### Important Dates

15 June 2006

Submission of abstract

15 July 2006

Notification of Acceptance

15 September 2006

Submission of manuscript

### Extended Abstract and Paper Submission

Extended abstracts are solicited to describe original and unpublished work. The abstract should be about 500 words and it must clearly state the purpose, results (including data, drawings, graphs and photographs) and conclusion of the work. Key references to prior publications and how the work enhances existing knowledge should be included in the abstract as well.

Authors must designate two appropriate categories for abstract review. All submissions must be in English and should be made via the online submission system found at <http://www.eptc-ieee.net>. The required file format is Adobe Acrobat® PDF or MS Word with only one single file for each submission. Please limit the file size to a maximum of 2MB.

The abstracts must be received by 15<sup>th</sup> June 2006. Authors must include their affiliation, mailing address, telephone and fax numbers, and email address. Authors will be notified of paper acceptance and publication instruction by 15<sup>th</sup> July 2006. The final manuscript for publication in the conference proceedings is due by 15 September 2006.

### Outstanding Technical Papers

The conference proceedings is an official IEEE publication. Author(s) of Outstanding Technical Paper(s) will receive an award at the next conference.

### Short Courses

The conference program includes full-day short courses which will be conducted by leading experts in the field. Details will be updated in the conference website and available in subsequent mailings.

### Exhibition

A tabletop exhibition featuring suppliers of materials, equipment, components, software and service providers of the microelectronics and electronic assembly industries will be held during the conference.

Conference information & contacts:

Website: <http://www.eptc-ieee.net>

**General Chair**  
John H.L. PANG  
Nanyang Technological  
University  
[mhlpang@ntu.edu.sg](mailto:mhlpang@ntu.edu.sg)  
Tel: +65-6790-5514

**Technical Program Chair**  
Vaidyanathan KRIPESH  
Institute of Microelectronics  
Singapore  
[kripesh@ime.a-star.edu.sg](mailto:kripesh@ime.a-star.edu.sg)  
Tel: +65-6770-5592

**Technical Program Co-Chair**  
Stephen C.K. WONG  
Singapore Institute of  
Manufacturing Technology  
[ckwong@SIMTech.a-star.edu.sg](mailto:ckwong@SIMTech.a-star.edu.sg)  
Tel: +65-6793-8490

**Secretariat**  
Ms Christine KHOO  
Singex  
Exhibitions  
[secretariat@eptc-ieee.net](mailto:secretariat@eptc-ieee.net)  
Tel: +65-6587-7125

# ECTC 2006

The 56th Electronic Components  
and Technology Conference

May 30 - June 2, 2006

Sheraton San Diego Hotel & Marina  
San Diego, California

The only event  
that encompasses  
the diverse world  
of integrated  
systems packaging

## HIGHLIGHTS

- 38 technical sessions, including 2 poster sessions
- 16 CEU-approved professional development courses
- Technology Corner Exhibits, featuring more than 70 industry-leading vendors
- Emerging Technology Sessions, including Biomedical, Nano-Scale and Organic Device Packaging
- Panel Discussion – 3D Interconnect
- Plenary Session – Packaging Solutions for Future Technologies
- Third iNEMI Workshop on Tin Whiskers
- CPMT Academic Conference

More than 300 technical papers covering:

- Advanced Packaging
- Modeling & Simulation
- Optoelectronics
- Interconnections
- Materials & Processing
- Quality & Reliability
- Manufacturing Technology
- Components & RF
- Packaging Education

Don't miss out on the industry's premier event. For more information, visit:

[www.ectc.net](http://www.ectc.net)

CONFERENCE SPONSORS:

