- His work in printed circuit board technology for electronic packaging led to the development of large, multi-layer printed circuit boards. This was crucial in helping U.S. astronauts gain greater real-time control of their space exploration activities.
- Founded the Maine Research Corporation which specialized in high-end printed circuit boards in 1964.
- Worked for AMP, Inc. and facilitated the organizations leadership in electrical/electronic connector technology, test socket technology and miniature semiconductor packages starting.
- Received the Leonard da Vinci Award from the American Society of Mechanical Engineers.
- Recognized by AMP (now part of Tyco Electronics) with a Lifetime Achievement Award.
- Named an IEEE Life Fellow.

Past recipients of the IEEE Technical Field Award for Components, Packaging and Manufacturing Technology:

2006 - C. P. Wong, Regent's Professor at Georgia Institute of Technology, Atlanta, Ga. For contributions in advanced polymeric materials science and processes for highly reliable electronic packages.

2005 - Yutaka Tsukada, Managing Director/General Manager of Advanced Packaging Technology Development, Kyocera SLC Technologies Corporation, Shiga-Ken, Japan. For pioneering contributions in micro-via technology for printed circuit boards, and for extending the feasibility of the direct flip-chip attachment process.

2004 - John W. Balde, Senior Consultant, Interconnection Decision Consulting, Flemington, N.J. For lifetime contributions to tantalum film technology and the introduction of new electronic packaging technology to development and manufacturing.

About the IEEE Technical Field Award for Components, Packaging and Manufacturing Technology

The award was first presented in 2004 and may be presented to an individual or a small team involved in device and systems packaging, including packaging of microelectronics, optoelectronics, RF and wireless and micro-electro-mechanical systems (MEMS).

Nominations are encouraged for next year's CPMT Field-Award; contact Len Schaper for details: schaper@uark.edu

IEEE CPMT Society Honors 2007 Award Winners

Submitted by Ms. Jacqulyn Hampton, Potomac Communications Group

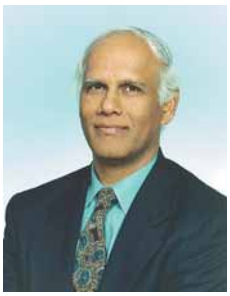
- *Awards presented during the 57th Electronic Components Technology Conference (ECTC) in Reno, Nevada, USA*
- *Georgia Institute of Technology faculty members receive two of six awards.*
- *Winners represent the depth and diversity of CPMT's global community of professionals*

Piscataway, N.J., June 11, 2007 - The IEEE Components, Packaging and Manufacturing Technology Society (CPMT) recognized its 2007 award winners at the 57th Electronic Components and Technology Conference (ECTC) in Reno, Nevada, USA on May 31, 2007. William T. Chen, CPMT Society president, presented the awards during the annual awards luncheon in front of an audience of more than 800 conference attendees. The Society gives these awards for distinguished performance in technical fields and dedication to the Society and profession.

"It is with great honor that I am able to present these awards to such fine recipients," said William T. Chen, President, CPMT Society. "Their exceptional contributions to the fields of components, packaging and manufacturing technology should be celebrated by all in this profession."

"It is these achievements that allow our industry to grow and thrive."

- **Rao R. Tummala** (Georgia Institute of Technology, USA) – *IEEE CPMT David Feldman Outstanding Contribution Award* – for the breadth of his contributions to the CPMT Society in numerous leadership roles, as well as their global impact; including his unprecedented two terms (four years) as CPMT Society President. This award is presented to recognize outstanding contributions to the fields encompassed by the CPMT Society through executive or managerial directions.



Tummala served as the CPMT Society President from 2000 - 2003. In this role he was responsible for revolutionizing the Society and identifying a number of critical and strategic needs. During his time in office he was able to expand the society by assisting in the formation of several Student Chapters and the creation of a number of CPMT Society Chapters throughout the world.

In addition to his work for the CPMT Society, Tummala is a successful industrial technologist and academician. He was named an IBM Fellow and served as the Director of the NSF Centers in Packaging. He has received many industry and academic awards including one of the Stars in U.S. for industry competitiveness and multiple awards from IEEE, IMAPS, I-ASM., SME, DVM and AM, Ceramic Society. He was named as a Distinguished Alumni from the University of Illinois and the Indian Institute of Science in Bangalore. He also received the highest faculty award from the Georgia Institute of Technology, the Class of 1934 Distinguished Professor Award.

- **Philip Garrou, Ph.D.,** (Cary, North Carolina) – IEEE CPMT *Outstanding Sustained Technical Contribution Award* – for 25 years of technical contributions and leadership in thin film dielectric materials and microelectric applications including multichip modules, bumping and wafer level packaging, integrated passives, oLEDs, and most recently 3D IC integration. This award is presented to an individual who has demonstrated outstanding sustained and continuing contributions to the technology fields encompassed by the CPMT Society.

As well as his more than two decades of service to the CPMT Society, Dr. Philip Garrou, is a global technical expert in thin film dielectric, or BCB. In the late 1980s there were several polymer dielectrics being used by several U.S. and Asian companies that were attempting to compete with the incumbent polyimide materials. Under Dr. Garrou's leadership,

BCB was the only product that made significant advancement in the field of thin film dielectrics. Dr. Garrou worked with universities such as Georgia Tech, University of Arkansas and Linköping University, various institutes and large R&D operations at corporations such as Motorola, AT&T, Bell Labs, Nortel, Trinquint, NEC, Sumitomo Bakelite, ST, Simens, Amkor and ASE to discover and publish new applications that were enabled by the use of thin film polymer.

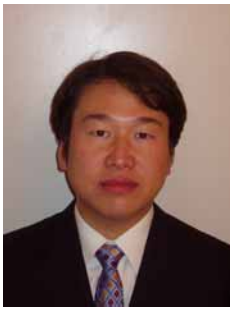
- **Chin C. Lee, Ph.D., (**University of California - Irvine, USA) – IEEE CPMT *Exceptional Technical Achievement Award* – for his pioneering contributions to fluxless soldering and bonding technology. This award recognizes an individual for exceptional technical achievement in the fields encompassed by the CPMT Society.

With more than 25 years of experience, Dr. Chin C. Lee has pioneered research in diversified topics such as materials science, electronic packaging, manufacturing, thermal measurement and management, acoustic microscopy, integrated optical devices, electronics, semiconductor devices, and microwave theory. He developed a fluxless process that eliminates the root of flux requirement in soldering processes. It thus prevents oxidation from the beginning to the end of the entire process – from solder manufacture to the finish of the soldering process. In addition to his work with fluxless soldering and bonding technology, Dr. Lee was elected as the Director of the School-wide Interdisciplinary Materials and Manufacturing Technology Graduate Program at UC-Irvine. This is one of the few existing programs for manufacturing technology. In this role he expanded the faculty to 25 members and added courses to enhance the manufacturing technology curriculum.

- **Herbert Reichl, Prof. Dr.-Ing. Dr.-Ing. E.h.,** (Fraunhofer IZM, Germany) – IEEE CPMT *Electronics Manufacturing Technology Award* – for his outstanding contributions in research and education in the field of microelectronics packaging and for his pioneering role in the integration of reliability aspects. This award is presented to an individual who makes major contributions to Electronic Manufacturing Technology in the fields encompassed by the CPMT Society.

Reichel is responsible for many innovations and developments in the field of microelectronic packaging. Included in his achievements is the introduction of new methods to determine and achieve a high level of electrical, thermo-mechanical and thermal reliability in micro systems. Dr. Reichl has incredible foresight in this industry as he merged technology development, design and simulation many years before hardware and technology co-design found its way into the technical discussion. He was also one of the first researchers to turn his attention from consideration of single technologies and components to the broader spectrum of system solutions. This development has yielded a movement toward all-round system integration. Dr. Reichl's achievements have been recognized by many industry societies. He is as Fellow of IEEE and of IMAPS and received the David Feldman Outstanding Contribution Award from the CPMT Society in 2002.

- **Myung Jin Yim., Ph.D.,** (Georgia Institute of Technology, USA) – IEEE CPMT *Outstanding Young Engineer Award* - for his outstanding contributions to the field of electronic packaging materials and technology through numerous inventions and technical publications, and for services to the CPMT Society. This award recognizes an individual who has made outstanding contributions to the fields encompassed by the CPMT Society through invention, technical development, publications, or new product implementation.



As a post doctorate researcher for the Georgia Institute of Technology Myung Jin Yim has spent the last 10 years working on the design, synthesis and characterization of polymeric composite materials, especially anisotropic conductive adhesives for electronic packaging applications. He has published more than 20 original papers in prominent peer reviewed journals and has presented his findings more than 40 times at prestigious technical conferences. He has made significant technical contributions including new concepts of anisotropic conductive adhesives applicable to flip chip assembly on organic substrate with dual function of electrical interconnection and underfilling. Additionally, he has a growing reputation as one of the recognized leaders in the field of flip chip technology using electrically conductive adhesives for low cost, low temperature, ultra fine pitch and environmentally clean (lead free) packaging material solutions. Dr. Yim currently holds more than 50 issued patents and patent pending applications. In the past six years he has acquired seven U.S. patents – an unprecedented number for someone so early in their career.

"It's an honor to recognize those professionals who have made significant contributions to our industry through technical or professional achievements," said Kitty Pearsall, CPMT Society awards chair. "We encourage everyone in the profession to nominate their colleagues for next year's awards."

To learn more about the CPMT Society awards, view past winners, or to learn how to nominate a colleague for the 2008 awards, visit **www.cpmt.org/awards**.

About the CPMT Society

The IEEE Components, Packaging and Manufacturing Technology (CPMT) Society is the leading international forum for scientists and engineers engaged in the research, design and development of revolutionary advances in microsystems packaging and manufacturing. Visit **www.cpmt.org** for more information.

Best 2006 CPMT and ECTC Paper Awards

By Dr. Vasudeva P. Atluri, CPMT Newsletter Editor

Two Best Transaction Paper awards were given at the CPMT Luncheon on Thursday during 57th ECTC 2007 in Reno, Nevada.

Best Paper in the 2006 issues of the Transactions on Components and Packaging Technology:

Paper Title: "On-Chip High-Speed Localized Cooling Using Superlattice Microrefrigerators", Volume 29, Issue 2, June 2006.

Authors: Yan Zhang, James Christofferson and Ali Shakouri, UC-Santa Cruz; Gehong Zeng and John Bowers, UC-Santa Barbara; and Edward Croke, HRL Laboratories LLC

Abstract: In this paper, we addressed heating problems in integrated circuits (ICs) and proposed a thin-film thermionic cooling solution using Si/SiGe superlattice microrefrigerators. We compared our technology with the current most common solution, thermoelectric coolers, by strengthening the advantages of its compatible fabrication process as ICs for easy integration, small footprint in the order of /spl sim/ 100x100 um2, high cooling power density, 600W/cm2 and fast transient response less than 40 us. The thermoreflectance imaging also demonstrated its localized cooling. All these features combined together to make these microrefrigerators a very promising application for on-chip temperature control, removing hot spots inside IC.

The award was presented by Paul Wesling, VP-Publications, to James Christofferson. It consists of a certificate, plus US $2,000 divided between the authors.

Best Paper in the 2006 issues of the Transactions on Advanced Packaging:

Paper: "Novel Method for Simultaneous Formation of Wires and Vias of a Printed Circuit Board using Nanoporous Body", Volume 29, Issue 2, May 2006.

Authors: Koji Asakawa, Shigeru Matake, Yasuyuki Hotta and Toshiro Hiraoka, Toshiba Research and Development Center

Abstract: A new type of a flexible printed circuit board with landless vias is developed using a novel method called interconnection via nanoporous structure (INPS). This method can make wires and vias of the printed circuit board simultaneously by a single photo-exposure process. A new photo-induced selective plating method was used to impregnate a nanoporous substrate with copper, and a new photomask was designed, which constitutes of a completely vacant large hole for via and aggregation patterns of very fine holes for wire. Because of the simple process, the INPS board is characterized by landless vias and very fine circuit. Owing to the structure, it is also characterized by flexibility and detachable wires.

The award consists of a certificate, plus US$2,000 divided between the authors. The award was presented by Paul Wesling, CPMT Society VP – Publications, to a representative from Toshiba who received the award on behalf of the authors.

Best ECTC Papers from 56th ECTC 2006:

The Electronic Components and Technology Conference executive committee have also announced the "Best of Conference" and "Conference Outstanding" papers selected from the preceding 56th ECTC 2006. The authors of the Best Session Paper share a check for US $2500 and the authors of the Best Poster Paper share a check for US $1500. The winning authors also receive a personalized certificate commemorating their achievement. The winning authors for Conference Outstanding Paper receive a personalized certificate commemorating their achievement and will share a check for US $1000.

Best of Conference Papers from 56th ECTC 2006 were:

Best Session Paper (Session 20, Paper 7)
Paper Title: Interface Failure in Lead Free Solder Joint
Authors: Robert Darveaux[1,2], Corey Reichman[1,2], Nokibul Islam[1] - [1]Amkor Technology, Inc., [2]Arizona State University

Best Poster Paper (Session 38, Paper 9)
Paper Title: Flex-Circuit Chip-to-Chip Interconnects
Authors: Henning Braunisch, James E. Jaussi, Jason A. Mix, Mark B. Trobough, Bryce D. Horine, Victor Prokofiev, Daoqiang Lu, Rajashree Baskaran, Pascal C.H. Meier, Dong-Ho Han, Kent E. Mallory, Michael W. Leddige - Intel Corporation

Conference Outstanding Papers from 56th ECTC 2006 are:

Outstanding Session Paper (Session 3, Paper 3)
Paper Title: Thin Electroless Cu/OSP on Electroless Ni as a Novel Surface Finish for Flip Chip Solder Joints
Authors: Young-Doo Jeon, Yong-Bin Lee, Young-Sik Choi – Samsung

Outstanding Poster Paper (Session 37, Paper 3)
Paper Title: A Novel Synthesis Method for Designing Electromagnetic Band Gap (EBG) Structures in Packaged Mixed Signal Systems
Authors: Tae Hong Kim[1], Daehyun Chung[2], Ege Engin[1], Wansuk Yun[1], Yoshitaka Toyota[3], Madhavan Swaminathan[1] – [1]Georgia Institute of Technology, [2]Korea Advanced Institute of Science and Technology, [3]Okayama University

These papers and other CPMT Transactions and ECTC papers can be reviewed by accessing **ieeexplore.ieee.org**.

15th Motorola – IEEE CPMT Society Graduate Student Fellowship for Research on Electronic Packaging

Submitted by Dr. Rao Bonda, Program Chair, 57th ECTC 2007

The IEEE CPMT Society announced the 15th Motorola-IEEE CPMT Society Graduate Student Fellowship for Research on Electronic Packaging at 57th ECTC 2007 held in Reno, Nevada. The purpose of the Fellowship is to promote graduate-level study and research in electronic packaging. An annual award will be made to a student enrolled full-time in a graduate curriculum leading to a Ph.D. and whose major field of study is in electronic packaging. For the purpose of this award, electronic packaging research is defined as the fundamental study of the design, analysis, characterization, manufacturing, thermal management, or reliability of electronic interconnect assemblies including semiconductor / photonic devices and printed wiring board technologies. The award is based on a student paper competition held at ECTC for the abstracts submitted by the students indicating a desire to be considered for Motorola Fellowship.

This year's winning paper at 57th ECTC 2007 was presented by Kiwon Lee and was titled "Ultrasonic Anisotropic Conductive Films (ACFs) Bonding of Flexible Substrates on Organic Rigid Boards at Room Temperature". Kiwon Lee's co-authors included