

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!