



**Center for Advanced Research in Photonics
Institute of Optical Science and Technology (IOSAT)
The Chinese University of Hong Kong
Seminar**



**Title: Optical Packaging for optical interconnects
Date: Friday 13 February 2004
Time: 10.15-11.15am
Location: Room 418 Ho Sin Hang Engineering Building,
The Chinese University of Hong Kong**

Abstract:

**Optoelectronic Packaging for Optical Interconnects
By Prof. Sing Lee, University of California San Diego**

Packages of optoelectronics provide the platforms for interconnecting or integrating different devices, and support the following major functions: distributions of optical and electrical signals, power delivery and heat removal, environmental protection and testing. Optoelectronic packaging is very important in manufacturing reliable products for optical interconnects in large quantities at competitive costs, since it often consumes more than 50% of the product costs. Yet, optoelectronic packaging has been a neglected subject of teaching and research at many universities because it is difficult and not glamorous. It is difficult because it is multi-disciplinary, involving not only optical engineers (LEDs/lasers, waveguides, fibers, detectors), but also microelectronic (driver IC circuits, receiver IC circuits, microelectronic packaging) and mechanical engineers (thermal management, mechanics, reliability), material scientists (solder materials, epoxy materials, material interfaces) and computer software engineers (simulation, analysis, design).

In this presentation, examples of technologies employed by optoelectronic packaging that are compatible with electronic packaging will be discussed. The multi-disciplinary nature of optoelectronic packaging will be illustrated, and its important differences with electronic packaging pointed out. The usefulness of incorporating MEMS (micro-electro-mechanical systems) in optoelectronic products will also be explored. Integrating MEMS in optoelectronic products presents additional packaging challenges

About the Speaker

Professor Lee received his Ph.D. degree in Electrical Engineering from the University of California, Berkeley in 1968. He was an Assistant/Associate Professor at Carnegie Mellon University 1968-1973. He joined the Electrical and Computer Engineering Department at U.C. San Diego in 1974 as an Associate Professor, and has been holding a Professorship there since 1979.

He has published more than 140 refereed journal publications in the areas of optical interconnects, optoelectronic packaging, electro-optical devices, diffractive and refractive micro-optics, and computer generated holograms for high speed data communications and advanced computing systems. He was a topical editor of Applied Optics 1990-1995, a guest editor of special issues of Optical Engineering and Applied Optics, and program chairs of three OSA and SPIE topical meetings. He has also edited four books (published by Academic Press, Springer-Verlag and SPIE press) and has been granted three US patents. He was the Chairman of the optical processing group of IEEE's Computer Society 1986-88. He was elected in 1983 to be a Fellow of the Optical Society of America, and in 1990 a Fellow of the SPIE, the International Society for Optical Engineering. He was selected twice as one of nine delegates to represent USA in the US-USSR Science Cooperation Seminars on Optical Information Processing in 1975 and 1977. He was also selected as one of five delegates from USA to participate in the initiation of the US-Japan Joint Program on Optics for Computing in 1991.

All are welcome to attend the seminar

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