Recent Advances and Trends in Cu-Cu Hybrid Bonding

***Dr. John H Lau*, Unimicron Technology Corporation, Taiwan, China**

Abstract:

The recent advances and trends of Cu-Cu hybrid bonding are briefly mentioned in this presentation. Emphasis is placed on the fundamental on hybrid bonding, D2W vs. W2W vs. reconstructed wafer, bonding strength measurement, simulation of hybrid bonding, and some products using Cu-Cu hybrid bonding such as complementary metal oxide semiconductor (CMOS) image sensors, memory stacked on TSV-processor, and silicon bridge connecting the central processing unit (CPU) and graphic processing unit (GPU). The future products such as the high bandwidth memory (HBM) and, just like the 3D monolithic NAND flesh, the 3D monolithic DRAM will also be briefly mentioned. Some research and development topics will be suggested, and some recommendations will also be provided.

Speaker's Biography:

John H Lau, with more than 40 years of R&D and manufacturing experience in semiconductor packaging, has published more than 535 peer-reviewed papers (385 are the principal investigator), 52 issued and pending US patents (31 are the principal inventor), and 24 textbooks. John is an elected IEEE fellow, IMAPS Fellow, and ASME Fellow and has been actively participating in industry/academy/society meetings/conferences to contribute, learn, and share.