The EUVL Marathon: Getting Across the Finish Line

Harry J. Levinson – Senior Fellow GLOBALFOUNDRIES

In recent years, considerable progress has been made in EUV lithographic technology, but some additional improvements are still needed to meet the projected requirements of high volume manufacturing (HVM). Source power and reliability have improved to a level sufficient for process development, but capability remains short of HVM requirements. Resists have progressed adequately in terms of resolution and LER, albeit at doses of 30 mJ/cm^2 and higher. The levels of EUV mask blank defects have been reduced sufficiently for contact hole and via applications, but further improvements are needed for metal layers. There is costly infrastructure for making EUV masks that must be installed in mask shops. EUV pellicles have been developed, but attenuate the light appreciably. Sophisticated source optimization and scatter bars will be required to offset mask 3D effects. Process control requirements for the 7-nm node and beyond are very tight, and there are new, EUV-specific sources of overlay errors and critical dimension variations that require innovative methods for monitoring and mitigation.

Organized by: