Theme: Semiconductor Equipment

- Sub Theme: Technology for Semiconductor Metrology and Inspection

Advanced metrology and inspection (MI) techniques are highly required for the single-digit-node semiconductor manufacturing process. Most conventional techniques including spectroscopy, microscopy, and scatterometry encounter various challenges but they need to overcome the physical limitation (Resolution, Sensitivity, Throughput, etc.) through innovative methods. Now, a technical breakthrough is necessary to fill the discrepancy between the requirement and performance in the field of semiconductor metrology and inspection.

We are aiming to find a novel technique that can overcome the physical limitation in resolution, the field of view, sensitivity, and throughput. The topics we pursue through this GRO are as follows:

· Materials and structure characterization with particle-beam microscopy (SEM, FIB, EDS, etc.)
· 3D imaging with thermal, THz, photoacoustic, or other waves
· Ultra-high resolution microscopy (EUV, X-ray, AFM, etc.)
· Scatterometry with novel modality (Mueller matrix, interference, multi-channel, etc.)
· Novel Computational imaging (digital holography, metamaterial, coded aperture, etc.)

※ *The topics are not limited to the above examples and the participants are encouraged to propose the original idea.*
※ *Funding: Up to USD 150,000 per year*