Litho CD Metrology for Advanced Multi-Patterning Nodes: A New Optical Solution
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Advanced Logic and DRAM devices are driving Moore's law scaling and impose tighter requirements on litho CDU. Metrology tools used in litho need to meet these increased performance requirements to enable efficient process control of the scanners.

In this presentation, we will review these measurements requirements and the ability of different metrology technologies to satisfy them. Namely, we will compare the existing litho SEM-based solution to traditional optical-based solutions as well as new-generation optical-based solution. We will demonstrate that the new spectroscopic-ellipsometer-based optical metrology, customized for litho-specific application, is able to meet tighter specifications for logic and DRAM multi-patterned devices, bridging the gaps seen for the traditional solutions.

Capabilities simulations and real data examples obtained through collaboration with our customers will be provided to illustrate this claim. In particular, we will look at how the reduced uncertainty associated to our new optical solution enables to capture process trend within wafer or even within field not seen previously with the existing metrology.

We will also discuss how the new metrology outputs can help improve performance of the litho cell by leveraging existing scheme of metrology feedback or through new methodologies of correction.

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