



Emerging Trends in Semiconductor Manufacturing Analytics and Decision Making
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The landscape of microelectronics manufacturing is changing rapidly as advanced technologies grow in the number of steps and complexity of the processes used by leading semiconductor manufacturers. This has led to exponential growth in the amount of data that is being generated both from the equipment and the process monitors in the factory along with the capabilities for managing and analyzing that data. In light of the opportunities that we see with these big data advancements, it is time to re-examine current practices so that we can take full advantage of this data to improve overall factory performance. The role of services in keeping a fab running at the highest levels of performance will continue to grow, and the techniques need to be developed to facilitate this increased level of cooperation between the equipment suppliers and semiconductor manufacturers. Sophisticated diagnostic tools that leverage improved data management capabilities, combined with expertise around the equipment and process, are needed to accomplish the output and yield goals that semiconductor manufacturers require. Fault detection, run to run control, predictive maintenance and virtual metrology, combined with the detailed understanding of the equipment and processes are evolving to be an effective combination to drive factory output and yield. This presentation will discuss this evolution and illustrate what is possible both in practice and in the future.

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