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Invited Speech: Using Data Analytics to Improve Process Tool Performance

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About the Speaker

Helen Armer is a senior director in the Applied Global Services (AGS) division of Applied Materials. She leads the Knowledge Base and Data Analytics for AGS's Services Technology and FabVantage Consulting groups. She also developed and owns tool performance benchmarking for AGS. In this role, she is responsible for development and documentation of FabVantage methodologies, best known methods, and case studies. She is also responsible for building libraries of tool data collection plans and models that are deployed for rapid diagnostics of tool performance issues.. Her group also includes a team of data scientists who analyze tool data for FabVantage projects using various statistical and data mining techniques.

Helen joined AGS in 2009. Prior to that, she spent 10 years in Applied Materials' Silicon Systems Group in both the CVD and Track groups. She started her career as a process engineer. She has B.S. and Ph.D. degrees in chemical engineering, is a co-inventor on 27 U.S. patents, and has over thirty publications.

Abstract

Increasingly challenging process requirements in semiconductor manufacturing have resulted in greater process marginality, making it difficult to meet defect and yield targets. New approaches to analyzing process tool data are needed to speed diagnostics, improve tool monitoring, and model tool performance. This presentation will discuss the use of data analytics for addressing these challenges. It will discuss data collection, methods of visualizing data, and use of statistical and data mining techniques for modeling tool and wafer-level data.