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Facilitating Nanotechnology- Collaboration, User Dreams and Limited Budgets

The definition of Facilitate is “to make easy or easier”, to be of use, and to increase the likelihood of a response. This is the reason why we are all here today at the UGIM Symposium - to make Nanotechnolgy easier with our collaboration and sharing our dreams. Most of us are also here to find out how to do more on limited budgets, or in limited time. This keynote will explore the opportunity to facilitate nanotechnology by providing the right environment for collaboration, enabling users to dream and achieve results, and to do this work within the limits of the relevant financial constraints.

We also use the word “facilities” to describe the very buildings and physical systems in which technologists work. This talk will describe approaches to facilities design that will enhance collaboration and interaction, enable users to develop new and exciting nanotechnology and to make satisfactory compromises to ensure world class results with limited budgets.

Examples from AGI’s extensive Nanotechnology facilites design background (including the University of Louisville Micro/Nano Technology Center in the Belknap Research Building) will be used to illustrate how these new facilities must enhance collaboration between many user groups. Challenges and solutions for providing good spaces for collaboration in terms of interaction, segregation, and flexibility will be discussed.

Users dream of new tools, as well as cleaner and more stable environments in which to perform their research and yield better and more consistent results. This talk will address the critical elements of tool selection, cleanroom layout and design, and environmental control of cleanliness, static charge, temperature, relative humidity, electromagnetic interference, vibration and acoustical noise.

Examples of cleanroom designs and the financial impact of a few critical design elements will also be discussed. The talk will enable users who may be renovating older cleanrooms, building new cleanrooms where none existed, or moving up from “starter cleanrooms” to more sophisticated or larger cleanrooms to determine how and where to best invest limited funds.

The talk will conclude with some of the future trends in Nanotechnology buildings and cleanrooms.

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Abbie Gregg, President of AGI

Abbie Gregg has a background including fifteen years as an Engineering Consultant specializing in microelectronics process analysis and startup/restructuring of laboratories and manufacturing facilities. Her previous experience is in process engineering and operations management, and technical strategic planning for major semiconductor device manufacturers. Her areas of specialization include Flat Panel Displays, Flexible Displays and Batteries, Integrated Circuits, Microphotonics, MEMS, Disk Drive Components, Biochip/Medical devices/images and Multichip Modules.

As President of AGI, she has completed over 500 projects including Wafer Fab, MEMS, Flexible Electronics, Nanotechnology, and FPD Projects in USA, Europe, Canada, Malaysia, Taiwan, Japan, and Korea. Her recent work includes accommodation of 90 nm CMOS processing on 300mm wafers and nanotechnology research for University and Government laboratories.

She has developed a database and software system for computer aided layout, utility loading, and design of cleanrooms, advanced laboratories and characterization / imaging areas. Abbie's team also developed software model for semiconductor and FPD product cost, outsourcing analysis, cost of ownership and factory simulation. She has done extensive turn-around consulting, assisting technical operations in project management, and implementing continuous improvement methods.

Abbie holds a B.S. in Materials Science from the Massachusetts Institute of Technology, and studied Electrical Engineering at the University of Maine.