

Moderators: Purdy, Meyyappan

Panel: Nanotechnology Meets the Technology Roadmap for Semiconductors

Focus:

Speaker	Author	Company
1 James Hutchby		Semiconductor Research Corporation
2 Meyya Meyyappan		NASA Ames Research Center
3 Joe Brewer		University of Florida
4 George Bourianoff		Intel
5 Peter Krusius		Cornell University Nanofabrication Facility

Breakout

We have all heard that classical CMOS will have to change if Moore's Law is to continue. Many people believe that quantum devices based on nanotechnology are a solution to this challenge. But when will this occur? What aspects of nanotechnology are relevant? The latest update of the International Technology Roadmap for Semiconductors (ITRS) has identified "Emerging Research" technologies and devices that may play a part in this revolution. This panel session speculates on what non-classical CMOS, memory, logic and architectures may make it to the mainstream.

Dan Purdy will open the session and lead off with a statement of the need for nanotechnology devices and circuits that perform useful signal processing functions that extend beyond the capabilities available with conventional CMOS. He will ask the questions of what new technologies will progress beyond the laboratory to meet critical processing needs.

Jim Hutchby will then present the essence of the Emerging Research Technologies portion of the 2001 ITRS. These technologies are candidates for becoming the bridge from classical CMOS to the mainstream circuits of the future. In particular, he will touch on new transistor structures.

Meyya Meyyappan will outline the prospects for molecular nanotechnology

Joe Brewer will present the Emerging Research Logic and Memory technologies.

George Bourianoff will review the Emerging Research Architectures.

Peter Krusius will point out the major fabrication options and challenges for nanotechnology-based devices.