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Nanotechnology Opportunities in the Silicon CMOS World

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Nanotechnology is undoubtedly one of the most active and exciting areas of research. With silicon CMOS, which is the backbone of all computing and communication systems, reaching its scaling limits, there is high hope and speculation that nanotechnology will come to the rescue. In this talk, we discuss nanotechnology from a system application perspective. We examine both the potential opportunities and challenges for nanotechnology in computing system and personal wireless system applications.

BIOGRAPHY

Tak H. Ning received his Ph. D. degree in physics from the University of Illinois at Urbana-Champaign in 1971. He joined IBM Thomas J. Watson Research Center in 1973. His early technical contributions were in understanding hot-electron effects and in advanced bipolar technology. From 1982 to 1991, he managed the silicon devices and technology department in IBM Research, contributing to and leading the research effort on CMOS, bipolar, DRAM, EEPROM and SOI. He was appointed an IBM Fellow in 1991. In recent years, he has focused his technical activities on understanding the limits of CMOS as well as the opportunities beyond CMOS. He received the 1989 IEEE Electron Devices Society J.J. Ebers Award and the 1991 IEEE Jack A. Morton Award. He is a member of the National Academy of Engineering, and a fellow of the IEEE and of the American Physical Society.

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