Speaker Profile

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Name James S. Harris

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James S. Harris received B.S., M.S. and Ph.D. degrees in Electrical Engineering from Stanford University in 1964, 1965 and 1969, respectively. He is currently the James and Ellenor Chesebrough Professor of Electrical Engineering and Professor of Applied Physics and Materials Science. He served as Director of the Joint Services Electronics Program at Stanford University from 1984-2000 and as Director of the Solid State Electronics Laboratory from 1984-1998.

In 1969, Dr. Harris joined the Rockwell International Science Center in Thousand Oaks, CA where he initiated much of their work on III-V compound semiconductors. He was one of the key contributors in developing ion implantation in GaAs, MBE and heterojunction device technologies, leading to Rockwell's preeminent position in GaAs device technology. He was the Director of the Optoelectronics Research Department. In 1982, Dr. Harris joined the Solid State Electronics Laboratory, Stanford University, as Professor of Electrical Engineering to establish a program in MBE growth of compound semiconductor materials and novel heterojunction devices.

His current research interests are in the physics and application of ultra-small structures to new electronic and optoelectronic devices and high-speed integrated circuits based upon molecular beam epitaxial (MBE) crystal growth combined with a variety of nanolithography approaches to produce lateral patterning for 3-D, artificially structured materials. His major research focus is now in three areas: 1) novel optoelectronic devices for low cost, high speed metro area fiber networks and Si IC optical interconnects, 2) optoelectronic devices for biochemical and biomedical analysis on a chip, and 3) electron spin based devices for ultra low-power, high density electronics and quantum computing. He has served on numerous organizing and program committees for the IEEE IEDM, International Conference on Compound Semiconductors (formerly GaAs and Related Compounds), International Molecular Beam Epitaxy Conference. He has been the Conference Chair for both the U.S. (1992) and International (2002) Molecular Beam Epitaxy Conferences and the Advanced Heterostructure Transistor Conference. He is an Associate Editor for the IEEE Journal of Lightwave Technology and has served as Divisional Editor of the Journal of Electrochemical Society and on the editorial boards for Solar Cells and Materials Research Bulletin. He is the recipient of the 2000 IEEE Morris N. Liebmann Award for contributions to GaAs devices as an emerging technology, an IEEE Millennium Medal, the International Symposium on Compound Semiconductors Welker Medal and an Alexander von Humboldt Stiftung Senior Research Prize. He is a Fellow of the IEEE, the American Physical Society and Optical Society of America. He has supervised the research of over 85 Ph. D. students, published more than 750 papers, 12 book chapters and is the holder of 18 issued US Patents on heterojunction high speed transistors, optoelectronics devices, quantum effect devices, compound semiconductor materials and molecular beam epitaxy.