APS Colloquium

Wednesday, December 4, 2002
3:00 pm
APS Auditorium, Building 402, Argonne National Laboratory
APS Colloquium home

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http//www.bell-labs.com/org/physicalsciences/profiles/cherry.html

Science and Technology for Future Communications Networks

We live in an era of astounding technological transformation – the Information Revolution – that is as profound as the two great technological revolutions of the past – the Agricultural and Industrial Revolutions. All around us are now-familiar communication technologies whose very existence would have seemed extraordinary just a generation ago, such as cellular telephones, the optical fiber telecommunications backbone, the Internet and the World Wide Web. Bell Labs Research has a 77 year history of innovation in communications technology as well as science. I will discuss what the present economic and technical drivers of commercial communication networks are, some technical challenges that need to be overcome, and some of the current Bell Labs physical science and systems research in next generation communications networks including all-optical networks, ultra-broadband wireless data networks, and science in support of networks even farther in the future.

Cherry Murray, Research Strategy, Wireless and Physical Sciences Research Sr. Vice President, Bell Laboratories, Lucent Technologies, is a physicist recognized for her work in surface physics, light scattering and complex fluids. She is best known for her imaging work in phase transitions of colloidal systems. She was born in 1952 in Ft. Riley Kansas into an Army and then Foreign Service family, and spent her childhood traveling around the world, moving on the average once per year. After receiving a BS and Ph.D in physics from the Massachusetts Institute of Technology, she was hired into Bell Labs as a Member of Technical Staff in 1978. Cherry became a Distinguished Member of Technical Staff at Bell Labs in 1985. She has numerous publications and two patents.

At Bell Labs, she was promoted to Department Head of the Low Temperature Physics Department in 1987, and served as Department Head of the Condensed Matter Physics, and then Semiconductor Physics Departments until 1997, when she was promoted to Director, Physical Research Lab. She is proud of managing the 40Gb/s electronics group and the invention and development of the optical fabric for the first all-optical crossconnect for telecommunications networks, Lucent's Wavestar LambdaRouter. She was promoted to Physical Sciences Sr. Vice President in April 2000, and assumed her present responsibilities in October 2001. In this position, Cherry has responsibility for the strategy of all Bell Labs Research and also Bell Labs

Research Business Development. She also manages the Wireless and Physical Research Labs, and is responsible for the relationship of Bell Labs Research with Lucent's largest business unit, Mobility Solutions. She spearheaded state, industry, government lab and university interest and the formation of the New Jersey Nanotechnology Consortium, a not-for-profit industry-university-government consortium for research and education in nanomanufacturing, including creation of a nanotechnology roadmap for integration of nano electrical and mechanical devices for applications to information technology and biotechnology. She currently serves on the Board of Directors of the Consortium.

Cherry is a member of the National Academy of Sciences, the National Academy of Engineering and the American Academy of Art and Sciences. She is a Fellow of the American Physical Society and the American Association for the Advancement of Science and a member of the American Chemical Society, the Optical Society of America, the Materials Research Society, and Sigma Xi. She won the APS Maria Goeppert-Mayer Award in 1989. She sits on numerous advisory committees and boards, including the National Sciences Resource Center, dedicated to the propagation of inquiry-based science education. She is currently a General Councilor of the American Physical Society and a Councilor of the National Academy of Sciences. She is a member of the National Research Council and the University of Chicago Board of Governors of Argonne National Laboratory, and she serves on the Basic Energy Sciences Advisory Committee for the Department of Energy.