

Optical Signal Processing by Parametric Devices

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Talk abstract: Optical Signal Processing by Parametric Devices Parametric devices based on four-wave mixing in fibers provide many functions that are required by optical communication systems. When operated in the linear regime, parametric devices provide amplification, frequency conversion and phase conjugation, all with high gain levels and broad bandwidths. They can also be used to buffer, monitor and switch optical signals. When operated in the nonlinear regime, parametric devices regenerate signals. They also produce entangled and squeezed states of light. In this talk recent research on parametric devices will be reviewed, and the implications of this research for classical and quantum communication systems will be discussed

Speaker biography: Colin J. McKinstrie received BSc and PhD degrees from the Universities of Glasgow and Rochester, in 1981 and 1986, respectively. From 1985 to 1988 he was a Postdoctoral Fellow of Los Alamos National Laboratory, where he was associated with the Applied Physics Division and the Center for Nonlinear Studies. In 1988 he returned to the University of Rochester as a Professor of Mechanical Engineering and a Scientist in the Laboratory for Laser Energetics, where his main research interests were plasma-based particle acceleration, laser-plasma interactions and nonlinear fiber optics. Since 2001 Dr. McKinstrie has been a Member of the Technical Staff at Bell Laboratories, where his research concerns the amplification and transmission of optical pulses in communication systems. He has served on technical committees for CLEO, FIO, LEOS and OFC, and is the Chair of the OSA Quantum Electronics Division.