

Janet Lehr Jackel
North-C Technologies
31 Stoney Brook Road, Holmdel NJ 07733 USA
732 500-6058
janet.jackel@north-c.com

EDUCATION

- PhD (1976) in Physics from Cornell University. Thesis Title: “Nonlinear Optical Spectroscopy in the Excitonic Region of Cadmium Sulfate”
- BA(1969) in Physics from Brandeis University (Magna cum laude, Phi Beta Kappa, honors in physics)

PRESENT POSITION

North-C Technologies

Technology consulting for photonics, optical communications and its underlying systems and technology

EXPERTISE

Optical networking, photonics, optical components & systems, based on simulation as well as experimental investigation of optical systems; includes experience with quantum communications

EXPERIENCE

Telcordia Technologies, Chief Scientist (2008 – 2011)

The role of Chief Scientist at Telcordia is to develop research concepts, find funding for them, and oversee their execution. I was responsible for developing concepts in optical networking and optical technology, and for leading the resulting optical networking and optical technology projects. This has included leading Telcordia’s physical layer research within the DARPA-funded CORONET project, including network element design and the physical layer aspects and implications of optical performance monitoring, and led Telcordia’s physical layer research in the Data in the Optical Domain (DOD-N) program.

Both of these DARPA-supported research projects pushed the limits of optical technology and networking. CORONET required design of a rapidly reconfigurable global network with capacity orders of magnitude greater than today’s networks. DOD-N aimed to design an optical data router that can take the place of electronic routers, and our role was to use simulation and modeling to evaluate how well the other teams’ designs would function in a real network.

In addition, I had a major role in most of the optical research proposals that Telcordia submitted during these years.

Telcordia Technologies, Director, Optical Networking Systems Research (2000-2011)

The role of Director (group leader) at Telcordia encompasses line management and project management. As Director, I managed a group of 6-7 researchers, mostly PhD’s, and led and co-led proposals and resulting programs for a wide range of optical networking and optical technology programs. At the same time, I was a technical contributor to these programs, and developed technical concepts that led to a number of patents.

Following the influential DARPA-funded MONET program, in which I developed optical switching and amplifier technologies and led the experiments which tested and validated the value of the then cutting-edge WDM network, I led a separate follow-on experimental program, which probed and challenged the capabilities of this technology and led a subsequent experimental program for a US government agency, which investigated practical aspects of advanced networking: QKD in networks, a testbed for ultra-high speed transmission, and network dynamics in a transparent network.

More recently, as one of the technical leaders of a DARPA-funded OCDMA project, I originated the designs of the coder/decoders that are at the heart of the system. I also served as Telcordia technical lead in the NIST-funded PCAD project, in which a multi-company team developed advanced simulation software for modeling optical devices, systems, and networks.

Telcordia Technologies, Research scientist / Senior research scientist: research in optical technologies, 1984 – 2000:

- Optical materials research and novel applications: waveguide fabrication in LiNbO₃, glasses, nonlinear polymers; demonstration of spatial solitons in nonlinear optical waveguides
- Optical components research: LiNbO₃ modulators, tunable filters, acousto-optic tunable filters and switches; waveguide “bubble switch”
- Optical component packaging
- Optical systems research: improvements in EDFA dynamic performance, optical switch architecture improvements
- Optical Networking research: led experiments task on MONET Project
- Optical Networking Simulation: Telcordia technical lead for PCAD

Bell Laboratories, Member of Technical Staff: research in optical components, 1976-1983

- Optical materials research and novel applications: waveguide fabrication in LiNbO₃, glasses; invented proton exchange for LiNbO₃ components
- Optical components research: LiNbO₃ components, glass/liquid crystal composite components

PROFESSIONAL ACTIVITIES AND HONORS

- Fellow, Optical Society of America
- Fellow of IEEE
- Internal awards: 3 Telcordia CEO awards for work on DARPA-supported MONET project, for LTS accomplishments, and for CORONET program; **Telcordia Fellow**
- Associate Editor, Journal of Lightwave Technology, 2007 to present
- Member IEEE Photonics Society Board of Governors, 2008-2010
- Reviewer for numerous technical journals and conferences and evaluator for proposals for NSF and other US funding agencies.
- 15 Patents and over 140 technical papers & published talks