LUIS F. GARFIAS

Principal Investigator, SCN, Lucent Technologies, Reliability Research Department
Room 1T-206, 600 Mountain Avenue, Murray Hill, NJ 07974-0636, USA
TEL: +1 (908) 582-1542, FAX: +1 (908) 582-5939 and 582-2226
E-MAIL: garfias@lucent.com

RESPONSIBILITIES

My current work is related to the reliability physics and chemistry of photonic and electronic components and assemblies. A specific goal is the identification and procurement of advanced devices/assemblies that are capable of long-term reliable operation, particularly in harsher environments, e.g., high relative humidity, airborne particulate contamination, corrosive gases, and fluctuating temperatures, at a competitive cost. I also manage interdisciplinary teams that work together around the clock to solve critical problems with customers. I also design tests for qualification of new devices, and create accelerated test protocols that are used to predict lifetime in a specific environment. I have a very strong background on microscopy and corrosion and therefore I am always involved in the failure mode analysis (FMA) of our products. I am also involved in determining whether the devices we buy from our suppliers operate under the specifications that Lucent Technologies requires. I work together with designers and suppliers to identify those areas where we can improve current designs (packaging, thermal and processing) to ensure higher reliability of devices and circuit packs.

I also utilize my knowledge and experience in microscopy to develop and study new materials for biomedical applications and to develop and apply new methodologies for corrosion research and biosensors. My work at Bell Laboratories and at the University of Minnesota has given me a wide spectrum of experience in which I have solved many problems and developed new techniques for evaluation of new materials, products, and devices. I have studied biomedical, metallic and electronic materials using my unique near field capabilities combined with my microscopy laboratory. My research has utilized and I am experienced in electrochemistry, surface analysis, and materials science.

EXPERTISE

- Materials Science (Metals, Corrosion, Semiconductors, Polymers, Coatings, etc)
- Surface analysis using SEM/EDX, AES and XPS.
- *In-situ* scanning probe techniques using AFM, STM, CLSM, SECM, PEM, MFM and NSOM.
- Thermal imaging
- Packaging and processing of photonics devices
- Application of novel imaging techniques to the characterization of surfaces under liquids in different environments.
- Interfacing and adapting available equipment to computers and controllers
- Experience working with biomedical materials and living cells.
- Experience working in controlled environments: inert, dry and clean rooms.
- Experience with fiber optic, piezoelectric, thin films, vacuum systems, and laser technology.
- Strong mechanical, computer, mathematical and organizational skills.
- Ability to work as either a team leader or member.