
MECHANICAL ENGINEERING COLLOQUIUM FALL 2009 SERIES

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1 – 2:30 p.m.

Room MEC 224

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Engineering Issues in the Development of Fourth Generation (4G) Wireless Networks

Wireless telecommunications systems are evolving to so called Fourth Generation (4G) Networks that promise higher bandwidth data rates, richer voice quality, and enhanced reliability. One of the competing technologies within the 4G space is called Long Term Evolution (LTE). Though Alcatel-Lucent continues to support currently deployed 3G networks, and is engaged in competing technologies such as WiMax, it has made a concerted effort to develop a wide array of LTE products. Throughout the course of LTE product development, one is presented with a variety of interesting engineering issues including: convective heat transfer of electronics, shock and vibration of modules and higher level structures, electromagnetic interference (EMI) caused by high bandwidth radio frequencies (RF), weather proofing of sheet metal and cast enclosures, and general reliability. The aforementioned items are made more challenging to address when the trends are toward compressed design cycles, rapid deployment to customers with diverse and demanding needs, and the utilization of a supply chain dispersed throughout the globe. The presentation will try to illustrate how a foundation in traditional mechanical engineering disciplines helps to analyze these problems and derive practical solutions in a timely manner.

Paul Englert received his Ph.D. in Mechanical Engineering from Carnegie-Mellon University in 1987 in the area of Automated Manufacturing. He joined AT&T Bell Laboratories, now Alcatel-Lucent, in 1988 where he has performed research and development work in a variety of areas including: environmental stress testing for improved product reliability, elimination of chlorofluorocarbon emissions from manufacturing process, computer aided design and data management. He has coauthored a book on stress testing, has several patents, and is a registered Professional Engineer in New Jersey.

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