Photography Not Available

Wednesday, September 13th, 2006
1:00 PM – 5:00 PM

(T09) THERMAL MANAGEMENT OF ELECTRONIC AND TELECOMMUNICATIONS SYSTEMS

Description

This half-day tutorial aims to provide an understanding of the issues involved in the thermal management of electronic and telecommunication systems. The course covers the principles and the tools available to the design engineer. Emphasis will be placed on thermal management of telecom systems (indoor and outdoor).

The following topics will be covered: (a) Overview of Fundamentals and Theory: Heat Transfer, Fluid Mechanics, and Thermal Systems.(b) Thermal Characterization of Components: Thermal Resistance Concept, Junction Temperatures, Cooling, Heating Loads, etc. (c) Thermal Management of Outdoor Equipment: Active, Semi-active or Passive Cooling; Solar Loads. (d) Overview of Numerical Simulation, Background, Review and Evaluation of Commercial CFD Software Packages/ Tools (e) Review and Evaluation of Thermal Management Equipment: Heat Sinks, Heat Pipes, Microchannel Heat Sinks, Fans and Blowers, Thermoelectric, Interface Materials, Phase Change Materials, etc. and f) Thermal Management of Indoor and Outdoor Telecom Systems

Who Should Attend?

This tutorial is designed to help engineers and technicians with some thermal background (but new to the electronics, telecommunications field) understand the thermal challenges and demands of the electronics fields. Experienced engineers will also find the course very instructive and useful.

Benefits of Attending

Attendants to this tutorial will have a good understanding of the heat transfer and fluid mechanics principles affecting proper thermal management of electric, electronic, and telecommunications systems and components.

Attendants will also develop techniques that will be effective in the dissipation of heat generated in these systems.

Attendants will develop skills in the proper evaluation and selection of design tools such as CFD software, and of thermal dissipating equipment such as heat sinks, heat pipes, PCMs, heat exchangers with an emphasis on telecom systems (both indoor and outdoor).

About the Presenter

Maurice J. Marongiu is president and owner of MJM Engineering Co., Inc., a mechanical engineering consulting, research, and development firm specializing in the thermal management of electric, electronics, and telecommunications systems. M.J. Marongiu received his B.S. degree in mechanical Engineering from the University of Illinois at Urbana-Champaign in 1980. He received in 1982 his M.S. in mechanical engineering and in 1985; he earned his doctorate in mechanical engineering, both degrees from the University of Illinois at Urbana-Champaign.

Dr. Marongiu has over 10 years of engineering teaching experience in the thermal engineering areas. He taught at Texas A&M University at College Station, TX and Illinois Institute of Technology (IIT) in Chicago. He has taught heat transfer, fluid mechanics, thermodynamics, thermal systems, thermal management, experimental methods and other courses at the undergraduate and graduate levels as well as conducted research projects in thermal management, heat transfer and fluid mechanics.