ΕΙΧΗΜΥΘ/ΙΤΕ

ΣΕΜΙΝΑΡΙΟ

ΟΜΙΛΗΤΗΣ: Professor D. Megaridis,
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ΘΕΜΑ: Droplet Dispensing Technologies in Microelectronic Component Manufacturing: Fluid Dynamics, Heat Transfer and Phase-Change Phenomena.

ΤΟΠΟΣ: Αίθουσα Σεμιναρίων, ΕΙΧΗΜΥΘ/ΙΤΕ

ΗΜΕΡΟΜΗΝΙΑ: 14 Ιουλίου 1999

ΩΡΑ: 11:00 π.μ.

ΠΕΡΙΛΗΨΗ:

One of the major factors propelling the electronics industry today is miniaturization, which is driven by density of functions per chip, higher input/output (I/O) count and decreased pad and I/O pitch. Manufacturers are striving to improve capital utilization, reduce downtime associated with changeover and obtain higher yields and output at a time when the technical challenges are increasing. A class of manufacturing technologies, known as droplet-based, relies on ink-jet printing principles to create and place monodisperse arrays of miniature droplets (30 to 120 microns in diameter) on electronic substrates at rates up to 400 per second. The droplets consist of either metal alloys (such as Sn/Pb solder), or metal suspensions, and after deposition, they serve as attachment and/or structural materials in the electronic components. The advantages of the droplet-based techniques are discussed, and a review of the pertinent fundamental transport and phase-change phenomena is presented. An overview is also given of the research pursued in this area in the Droplet and Particle Technology of the University of Illinois at Chicago (UIC). The UIC work has both experimental and theoretical components and is conducted in close collaboration with industry. Selected experiments are performed in the microgravity facilities of NASA, and scientific insight is gained using the principles of similitude.