Abstract:

As electronic devices shrink in size, the tolerance allowed for variation between layers of circuitry within chips has also decreased. Chemical mechanical planarization (CMP) must be highly selective and tightly controlled to remove/polish the rough layers remaining after deposition of each sequential material in the process of building a device. The principal components of this process are a slurry of chemical components and abrasive nanoparticles, a polishing pad, and a material of interest to be polished. This presentation will focus on the system of chemical and physical interactions at play and how they may be understood and controlled in order to achieve the nearly atomically flat surfaces required by microelectronics manufacturers.