



Distinguished Lecture Series



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High Resolution Imaging Technology: A View of the Future



The drive to manufacture semiconductor devices with ever smaller features has inspired amazing improvements in imaging materials science and technology for about three decades. Billions of dollars have been spent in efforts to devise methods and materials that enable the printing of ever smaller transistors. The lithographic process that has been used to generate these “nano-structures” is becoming extremely expensive, and the cost of that process threatens the economics of the semiconductor manufacturing industry. Imprint lithography, a much lower-cost, high resolution patterning technology, is emerging as a potential adjunct to photolithography. Imprint lithography loosely defines a set of techniques that include several forms of embossing, stamping, and molding that show great promise as low-cost methods for producing nanostructures. These techniques take many different forms, each of which has its own special applicability. The technique we call Step and Flash Imprint Lithography (S-FIL) is designed to allow the fabrication of high resolution, high aspect ratio images that can be aligned with precision. The process accurately replicates arbitrary shapes as small as 20nm, and structures smaller than 3 nanometers in width have been faithfully reproduced. The state of high resolution imaging processes for production of devices with nanoscale features will be presented with emphasis on the Step and Flash Imprint Lithography Process.



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11 AM, Building 224, Room B-245**

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