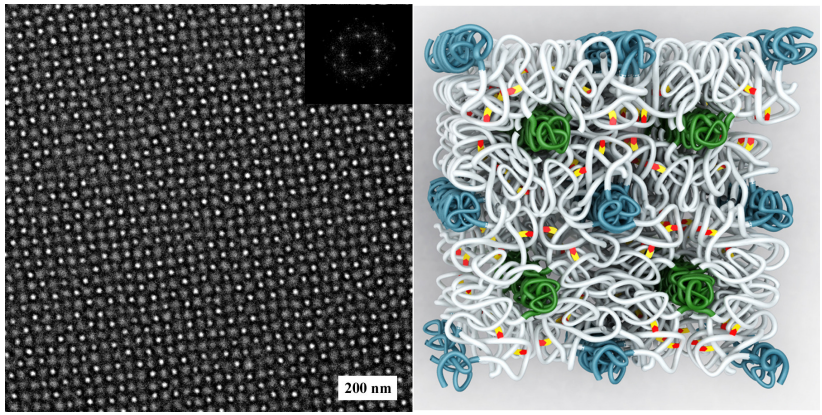
IRG-1 and IRG-3

NSF-DMR05-20415

Breaking Moore's Law

The manufacture of smaller, faster and more efficient microelectronic components is a major scientific and technological challenge, driven in part by a constant need for smaller lithographically defined features and patterns. While traditional self-assembling approaches based on block copolymer lithography spontaneously form nanometer sized hexagonal structures, these features are not consistent with the industry standard square coordinate system. As reported in the popular press and *Science*, combining supramolecular assembly of hydrogen-bonding units with controlled phase separation of diblock copolymers, now has been shown to give nanoscale square patterns. A major boost to the US semiconductor industry.



Square arrays of nanoscale features hold particular promise for future integrated circuit manufacturing and nanotechnology – More powerful and energy efficient microelectronic devices

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