

IV. Materials, Fabrication and Integration for Sensor Architectures

(A2) Nanostructure-Directed Nanoscale Growth for 3D Nano-architectures

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A burgeoning interest in nanoelectronic structures for sensing/processing/communications applications has recently led to substantial advances in nanostructure synthesis (e.g. nanotubes, nanowires, nanorods, nanobelts, nanoparticles, quantum dots) and discrete demonstration devices (e.g. FETs, diodes, sensors). However, much work remains for enabling the development of complex 3-D nano-architectures in the context of integrated nanosystems for microelectronics and photonics applications. Hence, this session will focus on novel approaches and seminal concepts for building, integrating and utilizing multifunctional 3D micro/nano-structures. The topics include but are not limited to nanostructure-directed patterning, nanoscale epitaxial growth, hierarchical growth, self-assembly, heterogeneous integration, template-synthesized architectures and various biomimetic structures. Contributions are envisioned which incorporate either or both lithographic and non-lithographic approaches and nanostructure-driven growth of arbitrary (i.e., aperiodic or asymmetric) geometries. This topic is focused on both construction and application of the 3D micro/nano-structures.