

## **Nano-Engineering of Semiconductors**

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Nano-technology involves using quantum properties that occur at very small sizes due to the low dimensionality of the system. By utilizing the quantum effects that arise from reduced dimensionality it is possible to create structures that have unique properties that are normally unrealizable in nature. In this talk we will describe how quantum properties occur at the reduced dimensions and how it is possible to engineer the materials to enhance certain electronic and photonic effects that would be difficult to achieve in bulk materials. Examples of zero, two dimensional nano-engineered structures will be discussed, with applications to microelectronic systems. Additionally we will describe methodologies for utilizing these nano-materials for fabrication of devices.

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