

**NUS Graduate School for Integrative Sciences and Engineering
Research Project Write-up**

Title of Project : Hybrid nanowire electronic devices

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Short Description

The proposed project aims to fabricate and study hybrid nanowire systems, with a view to the development of functional electronic devices. The material systems we will focus on are primarily one-dimensional metal oxides, carbon nanotubes, and metals. Device functionality can be derived from junctions formed between two or more nanowires, nanoparticle clusters formed on the nanowire, and granular nanowires. Depending on the nanowire system, such two-terminal devices can be used for photodetection, gas sensing, and magnetic sensing. In contrast to much of the current work by others on 1-D nanowires which only involve single material systems, or VLS-grown heterostructures in semiconductors, our approach aims to increase the versatility of 1-D systems offered by hybrid material systems. The project involves material synthesis, device fabrication / assembly, material characterization, and electrical transport studies.