

1D NanoMaterials: From Synthesis to Applications

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The lecture will cover recent research achievements of my group in the following areas:

- 1.** The high-fidelity large-scale creation of nanowire and nanotube arrays, with controlled and uniform orientation and density at spatially well-defined locations on substrates. As well, the discovery of a novel approach for the complete control over the shape of 1D nanomaterials will be presented.
- 2.** The development of controllable and reproducible synthetic routes to prepare robust single-crystalline Si -based hybrid nanostructures, nanotubes and nanoribbons.
- 3.** The use of silicon-nanowire 'electrical-nose arrays' as an effective platform exhibiting unprecedented outstanding chemical and biological detection capability in a broad range of applications, from medicine to homeland security.