

## **Growth of nanowires by vapor-liquid-solid mechanism for device applications**

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Nanowires have novel properties and, thus, are one of the most outstanding materials which may serve as the building blocks for the next generation of nano devices. Among many methods to grow nanowires, chemical vapour deposition (CVD) process via vapour-liquid-solid (VLS) mechanism has been widely used since Wagner and Ellis contrived this process for Si whiskers. This talk will focus on the fabrication and modulation of semiconductor nanowires by vapor-liquid-solid (VLS) mechanism and their feasibility as building blocks for nanoscale devices. Following a brief introduction of the figure of merits of nanowires, an approach to fabricate nanowires by VLS mechanism from oxide-, nitride- and carbide semiconductor will be shortly presented. Modulation of nanowires macroscopically, i.e., aligning and patterning of nanowires, will be presented for silicon, silicon carbide, gallium nitride and zinc oxide nanowires. Modulation of nanowires microscopically, i.e., doping and creating heterostructures, will also be presented. Optical, electrical and/or magnetic properties of nanowires will be discussed with emphasis on the feasibility for nano-devices. Lastly, a feasibility of VLS mechanism toward integrated-nanowire platform will be discussed.

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