

46a Growth of Semiconductor Nanowires from Organometallic Sources Using Cbe and Movpe[Invited]
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In this talk I will summarize our understanding of the formation of III-V nanowires either under high-vacuum conditions using chemical beam epitaxy (CBE), or close to atmospheric pressure, using metal-organic vapor phase epitaxy (MOVPE). I will describe details of our studies of nano-particle-induced growth, with an emphasis on our recent results indicating that we grow primarily from crystalline nanoparticles, i.e. not via a liquid phase as suggested by the terminology vapor-liquid-solid (VLS) growth. I will also present our results for lithographic control of location, dimensions and orientation of nanowires, epitaxially nucleated on a single-crystalline substrate. After a survey of other key techniques related to controlled growth, such as formation of ultra-sharp heterostructures within nanowires and the formation of branched 3D structures, I will survey device applications realized so far and give an outlook for future developments.