



GEMaC

Groupe d'Étude de la Matière Condensée

EPITAXY OF II-VI SEMICONDUCTORS 1D NANOSTRUCTURES FOR LIGHT EMISSION ABSTRACT

Semiconductor nanowires open new fields of investigation in fundamental physics and offer unique opportunities for the future generation of electronics, photonics, sensors, actuators, energy, and medical applications. In particular zinc oxide (ZnO) and zinc sulfide (ZnS) nanowires are attractive candidates for optoelectronic devices emitting in the range of the blue-UV range. The aim of the thesis is to realize II-VI nanowires (ZnS, ZnO, ZnSe), vertically oriented, and defects free. The materials will be grown by using Metal-Organic Chemical Vapor Deposition (MOCVD), and more precisely a catalyzed process called vapour-liquid-solid (VLS) for which the nanowire growth is locally triggered and further produced under a gold droplet. Van der Waals epitaxy will also be addressed. The morphology and the structural properties of the grown nanowires will be accurately characterized by scanning electron microscopy (SEM) and transmission electron microscopy (TEM) to understand the growth mechanisms. The optical proper

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ADDITIONAL INFORMATION

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