

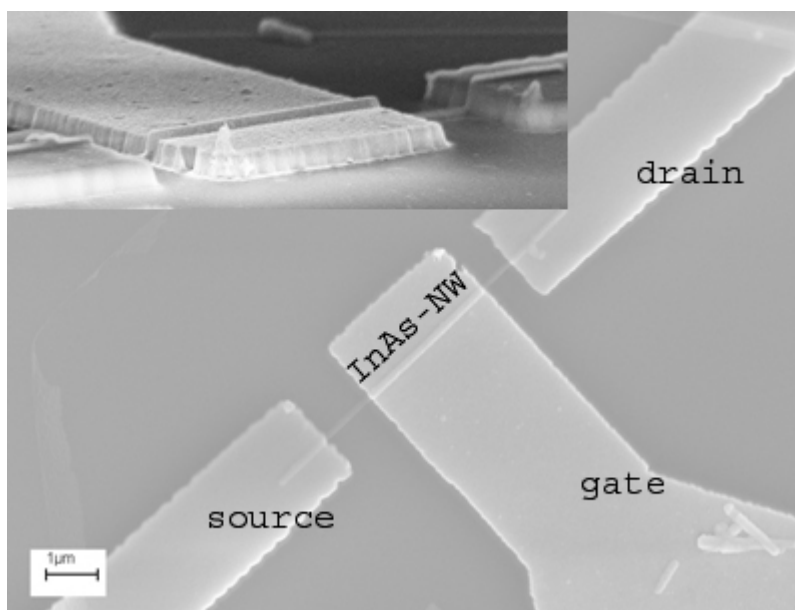
III-V-Semiconductor Nanowires for Nanoelectronics

Franz-J. Tegude

Solid-State Electronics Dept., University Duisburg-Essen

Semiconductor nanowires offer a quite unique combination of structural and electronic properties along with a fascinating growth mechanism. Though already demonstrated in 1964 [1], they just recently attracted significant research attention as key building blocks for future electronic and optoelectronic nanodevices.

This paper presents considerations and results on gold particle seeded III-V-semiconductor growth by MOVPE on different substrates, addresses problems and chances of vertical and core-shell heterostructures, the challenges of controlled doping for fabricating pn-junctions, and approaches for integration. The potential of nanowires is demonstrated by the fabrication of nanowire InAs-MISFET with excellent gain and electron transport.



InAs-Nanowire-MISFET