



FWF SFB INFRARED OPTICAL NANOSTRUCTURES

IR-ON SEMINAR

Semiconductor nanowires for future electronics

D. Grützmacher

FZ Juelich und RWTH Aachen

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Current advances in the semiconductor nanowire technology with respect to fabrication, transport and device performance will be discussed. In particular 3 examples will be introduced in detail. The fabrication of strained Si nanowires, using a top-down approach starting from a strained silicon on insulator layer (sSOI). Si nanowire transistors with encouraging device performance have been obtained. The second and third example deals with the technology of InAs as well as InN nanowires. Using catalyst free MBE and MOVPE growth processes nanowires with high aspect ratios as well as with radial and axial heterostructures have been prepared. Individual nanowires have been contacted by e-beam lithography and quantum phenomena are investigated by magneto transport measurements. The observed results give input to the potential application towards spintronic devices.

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