

X-Ray nano probe of implanted semiconductor nanowires

A. Johannes

Friedrich-Schiller-Universität, Jena, Germany

andreas.johannes@uni-jena.de

Semiconductor nanowires are investigated in a wide range of fields with photonic, electronic, thermoelectric, and many more applications in mind. A major problem is the doping of nanostructures as both ex- and in-situ doping interferes with the morphology or synthesis. Ion-beam doping is the established technology for doping in commercial microchip technology. Its application to nanostructures enables doping with a large degree of freedom. Monte Carlo simulations are required to calculate the desired concentrations and damage distributions. Nano-probe XRF, XANES and EXAFS provide powerful tools to evaluate the accuracy of such simulations. We will present our investigation of ion implanted semiconducting nanowires furthering the understanding of dopant incorporation, defect generation, secondary phase formation and sputtering in a model system.