



Sonderforschungsbereich 631
Festkörperbasierte Quanteninformationsverarbeitung



SONDERSEMINAR

Freitag, 22. Februar 2008

16:00 Uhr

WSI, Seminarraum S 101

“Template synthesis of nanomaterials”

I will present an overview of template synthesis as it applies to our nanomaterials research. This bottom-up approach is motivated by our desire to find an alternative to the big, top-down approaches to nanoscience, such as clean-rooms and X-ray lithography. Using universally available templates and materials, and very modest synthesis techniques, we have created a variety of interesting and useful structures. Starting with homogeneous ferromagnetic nanowires, we were able to study and manipulate spin-dependent transport. Next we made multi-layer GMR and spin-valve structures for spintronics. Carbon nanotube molecules were grown in templates by CVD self assembly. The carbon nanotubes grown using a cobalt catalyzer show Coulomb blockade effects. We have started to study templated semiconductor nanorods. Finally, I will describe templated growth and contacting of nanowires as three terminal devices for ZnO field-effect transistors.

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