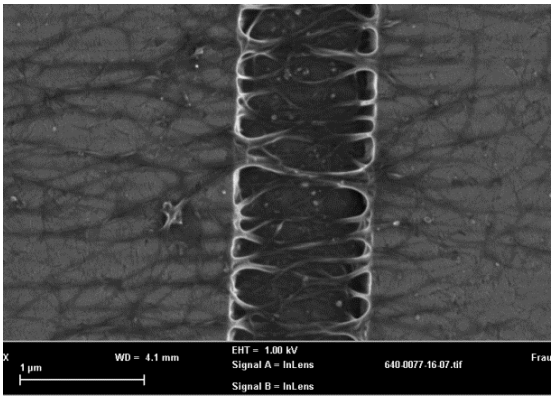
Technische Universität Chemnitz
Professur für Mess- und Sensortechnik
Prof. Dr.-Ing. O. Kanoun

Master Thesis/Bachelor Thesis/Project Work

Experimental Measurements of Metal/Carbon Nanotubes (CNT) Resistance

Task Description

Carbon nanotubes are promising nanomaterials for the future nano/micro-electronics wherewith their electrical, mechanical and optical properties are more favored among other conventional materials. In sensing application, they can be used to manufacture e.g. flow, strain and optical sensors. Although individual CNTs' electrical prosperities are well understood theoretically, in practice different and complicated CNT structures are manufactured. Therefore their behaviors, interaction and electrical properties still have to be studied and modeled elaborately.



Aligned single-walled carbon nanotubes between metallic electrodes

Dielectrophrosis DEP is used to deposit and align CNTs. After the experimental realization of the DEP-based CNT Sensor structures, the aim is to

- quantify the resistance components of the devices, e.g. CNT resistivity KΩ/µm.
- realize what type of electron transport takes place specially at the CNT/metal contact
- experiment different parameters effecting the resistance e.g. CNT length, bias voltage…etc

Students who have knowledge in solid state physics and semiconductor are welcomed to apply. Motivation and self learning ability are important. This work can be widened or shortened depending on the work requirement.

Supervisors

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