

# **Fabrication and Characterization of Single Walled Carbon Nanotube Transistors for Sensing**

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Key aspects of nano sensors, which utilize single walled carbon nanotubes (SWCNTs) as functional building blocks, are ultra small size, room temperature operation and high sensitivity or low limit of detection: the strain dependent piezoresistive gauge factor of a tube in a pressure sensor (40 mm diameter of the pressure sensor membrane) is demonstrated to be 450 - 700 in the low strain regime; the limit of detection of a NO<sub>2</sub> gas sensor has been shown to be below 100 ppb. Both sensors take advantage of very low power consumption in the range of 1 uW at room temperature. We report on the fabrication and characterization of single walled carbon nanotube field-effect transistors as transducers in such sensors. Aspects of device stability and reproducibility in dependence of the process flow will be discussed.