Integrating nanotubes into microsystems with electron beam lithography and in situ catalytically activated growth

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Integration of freestanding wire-like structures such as multi walled carbon nanotubes (MWCNT) into microsystems has many potential applications. Devices such as AFM tips or improved electrodes for conductivity measurements are obvious candidates. Catalytically activated growth opens up the possibility of wafer scale fabrication of such devices. We combine conventional microfabrication techniques with state of the art electron beam lithography (EBL) to precisely position catalyst nanoparticles with sub 100 nm diameter into the microsystems. In particular, we have explored two main approaches which allow the catalyst material deposition to occur after the microfabrication is finished, thus avoiding contamination of cleanroom equipment. (c) 2006 WILEY-VCH Verlag GmbH & Co. KG&A, Weinheim.

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