Novel four-point-probe design and nanorobotic dual endeffector strategy for electrical characterization of as-grown SWCNT bundles

In this paper, a novel nanorobotic strategy for non-destructive and direct electrical characterization of as-grown bundles of single-walled carbon nanotubes (SWCNTs) is presented. For this purpose, test patterns of SWCNT bundles having different diameters are grown on a silicon substrate by chemical vapor deposition. A new design of microstructured four-point-probes is proposed and fabricated allowing for direct contacting of vertically aligned bundles of SWCNTs. A nanorobotic setup is upgraded into a dual endeffector system to achieve good electrical contact between four-point-probe and SWCNT bundle and to perform electrical measurements. First experimental results of non-destructive electrical characterization are presented and discussed.