[NP-03]

The growth of freestanding single carbonnanotube arrays

Chang-Duk Kim, Do-Hyung Kim*, Hoon-Sik Jang*, Dong-Soo Cho*, Hyeong-Rag Leel
Dea-Young Kim**, Hyeong-Rag Lee***
Department of Nanoscience and Technology, Nanophysics and Technology Laboratory,
Kyungpook National University,
*Department of Physics, NPTL, Kyungpook National University,
**ETRI, ***KBSI, Daegu branch

Regular arrays of freestanding single carbon nanotubes (CNTs) were prepared on Ni dot arrays by DC plasma-enhanced chemical vapour deposition. The size of the Ni dot was reduced for single CNT growth by means of conventional photolithography and a lateral wet-etch process. The vertical alignment of a single CNT was directly dependent on the location of the catalyst metals. Using this method, well-separated and well-defined regular arrays of freestanding CNTs can be fabricated and the process can be scaled up at a lower cost than electron beam lithography, which is encouraging for applications in field emitters and nanoelectrodes.