Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Current-Controlled Nanotube Growth and Zone-Refinement K. JENSEN, W. MICKELSON, W. HAN, A. ZETTL, Physics Department, University of California at Berkeley, and Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley CA 94720 — We present methods by which the growth of a single carbon nanotube (CNT) can be precisely controlled by an electrical current. In one method a CNT is grown to a predetermined geometry inside another nanotube, which serves as a reaction chamber. Another method allows a preexisting marginal quality multiwall CNT to be zone-refined into a higher quality multiwall CNT by driving a catalytic bead down the length of the nanotube, which can be many microns long. In both methods the speed of nanotube formation is adjustable, and the growth can be stopped and restarted at will.

Kenneth Jensen
Physics Department, University of California at Berkeley
and Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley CA 94720

Date submitted: 06 Jan 2005 Electronic form version 1.4