

Abstract Submitted
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Synthesis of Carbon Nanotubes by Rolling Up Patterned Graphene Nanoribbons Using Selective Atomic Adsorption¹ DECAI YU, FENG LIU, University of Utah, LIU TEAM — We demonstrate a new method for synthesizing Carbon Nanotubes (CNTs), using first principles and classical molecular dynamics simulations. The single-walled nanotubes (SWNTs) are formed by rolling up graphene nanoribbons patterned on graphite films, through adsorption of atoms of varying coverage, which introduces an external stress to drive the folding process. The diameter and chirality of SWNTs can be *a priori* controlled by patterning graphene nanoribbons with predefined width and direction, so that the post-synthesis sorting process is eliminated. Our method allows potentially mass production of identical tubes and easy integration into device structures on a substrate.

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