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A Generic Method towards Periodically Functionalized Carbon Nanotubes[1] LINGYU LI, WENWEN CAI, STEPHEN KODJIE, KISHORE TENNETI, CHRISTOPHER LI, Department of Materials Science and Engineering, Drexel University, Philadelphia, PA 19104 — As a consequence of their extraordinary physical properties and large application potential, carbon nanotubes (CNTs) have attracted the interest of scientists and engineers since their discovery in 1991. However, in order to effectively explore the remarkable properties and manipulate CNT, one essential step involves their functionalization. Periodical pattering CNT is an extremely challenging yet attractive field of research, and up to date, very few reported CNT functionalization methods have dedicated on how to achieve the periodical pattern on CNT. Our study of functionalization of CNTs via controlled polymer crystallization method has resulted in "nano hybrid shish-kebab" (NHSK), which is CNT periodically decorated with polymer lamellar crystals. The morphology and periodicity of NHSK can be controlled by tuning experimental parameters such as concentration of polymers and CNT, crystallization temperature and time. Preliminary results show that the periodicity varies from 20-70nm. Similar results were successfully obtained from both Nylon 6, 6 and PE with different kinds of CNTs, which can prove this is a generic method to periodically functionalize CNTs.

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