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Structure and applications of nanohybrid shish-kebabs ERIC D. LAIRD, BING LI, CHRISTOPHER Y. LI, Drexel University — We describe some of the noteworthy aspects of "nanohybrid shish-kebabs" (NHSKs). NHSKs are nanostructures of polymer lamellar single-crystal patterned in regular spacings (a few tens of nm) along carbon nanotubes. These novel composite materials are named for their resemblance to the classical shish-kebab structures observed in polymers crystallized in a shear flow. Morphology and growth mechanisms will be discussed: NHSK can be either 2- or 3-dimensional, and tuning of kebab diameters and spacing is made possible by careful control of the growth conditions. For single walled carbon nanotubes decorated with polyethylene, kebab diameters can be tuned through processing conditions to range from 40-250 nm. This method of functionalization demonstrates adhesion superior to that of most other noncovalent methods. The unique nanoarchitecture of NHSK creates opportunities for a wide variety of novel devices and improvements to existing technology. Thick films of these novel hybrid structures were fabricated by a simple vacuum filtration methods. Their application to electronics and chemical detection will be discussed.

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