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Crystallographic growth and alignment of carbon nanotubes on few-layer graphene ARAM ARASH, PATRICK D. HUNLEY, MOHSEN NASSERI, MATHIAS J. BOLAND, ABHISHEK SUNDARARAJAN, BETHANY M. HUDAK, BETH S. GUITON, DOUGLAS R. STRACHAN, Univ of Kentucky — Hybrid carbon nanotube and graphene structures are emerging as an exciting material system built from a common sp2 carbon backbone. Such hybrid systems have promise for use in improving the performance of energy storage and high-speed electronic applications. Towards the attainment of such hybrid materials, the catalytic growth and crystallographic alignment of these integrated structures are investigated along with the atomic-scale features of their interfaces. The catalytic activity of nanoparticles to form carbon nanotubes on the surface of few-layer graphene is tuned through precise feedstock application. Through careful materials synthesis, the interfaces of these hybrid carbon nanotube – graphene systems are investigated through ultra-high resolution electron microscopy.

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