

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Synthesis of large-area graphene on cobalt film by thermal cracker enhanced gas source molecular beam epitaxy NING ZHAN, GUOPING WANG, JIANLIN LIU, Department of Electrical Engineering, University of California, Riverside, QUANTUM STRUCTURES LABORATORY TEAM — Recently, synthesis of large-area graphene has become increasingly important. Various metal substrates have been tested. Among these substrates, cobalt (Co) has been used to absorb carbon and form hexagonal structures on its surface. Nevertheless, only small graphene piece or nano carbon islands have been achieved. Here, we propose a method to grow graphene on Co using thermal cracker enhanced gas source molecular beam epitaxy. Atomic carbon beam provided by thermal cracker impinges to Co film and forms graphene epitaxially. Raman spectroscopy and transmission electron microscopy measurements confirmed mis-oriented stacking order between layers rather than strict AB Bernal stacking. The coverage of single layer and bi-layer is more than 90%. Growth temperature- and time-dependent analyses indicate a narrow growth window for the growth of few-layer graphene.

Ning Zhan
Department of Electrical Engineering, University of California, Riverside

Date submitted: 29 Dec 2010

Electronic form version 1.4