

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Delaminated Transfer of CVD Graphene¹ ALEXIS CLAVIJO, JINHAI MAO, NIKHIL TILAK, MICHAEL ALTVATER, EVA ANDREI, Rutgers University — Single layer graphene is commonly synthesized by dissociation of a carbonaceous gas at high temperatures in the presence of a metallic catalyst in a process known as Chemical Vapor Deposition or CVD. Although it is possible to achieve high quality graphene by CVD, the standard transfer technique of etching away the metallic catalyst is wasteful and jeopardizes the quality of the graphene film by contamination from etchants. Thus, development of a clean transfer technique and preservation of the parent substrate remain prominent hurdles to overcome. In this study, we employ a copper pretreatment technique and optimized parameters for growth of high quality single layer graphene at atmospheric pressure. We address the transfer challenge by utilizing the adhesive properties between a polymer film and graphene to achieve etchant-free transfer of graphene films from a copper substrate. Based on this concept we developed a technique for dry delamination and transferring of graphene to hexagonal boron nitride substrates, which produced high quality graphene films while at the same time preserving the integrity of the copper catalyst for reuse.

¹DOE-FG02-99ER45742, Ronald E. McNair Postbaccalaureate Achievement Program

Alexis Clavijo
Rutgers University

Date submitted: 11 Nov 2016

Electronic form version 1.4