

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Improving Polycrystalline Copper Surface by Hydrogen Etching for Graphene Growth¹ MERVE ARSEVEN, Advanced Materials Research Group, Nanotechnology and Nanomedicine Department, TAYFUN VURAL, Biopolymeric Systems Research Group, Chemistry Department, ENGIN OZDAS, Advanced Materials Research Group, Physics Department, Hacettepe University, Turkey — Growth of high quality, large scale pattern of graphene is the main important phenomenon to use this material in novel technological applications. CVD methods can provide an effective way to produce graphene, however, require a rigid stable substrate at high temperature processes [1]. Besides, the substrate that can be used in these processes must have low solubility of carbon to obtain mono or few layers of graphene, and be able to provide bigger grains for a large-scale growth [2]. Polycrystalline copper foil is an appropriate candidate to achieve these attributions in case of reducing the pinhole and defect density, and increase the grain size. In this study, we investigate the effect of hydrogen partial pressure, heating rate, annealing temperature and duration on the etching process to optimize the surface. Surface roughness analyses are performed by AFM, and grain size distributions are determined by the analyses of optical microscope images. [1] Sukang Bae *et al.*, Nature Nanotechnology **5**, 574, 2010. [1] Xuesong Li *et al.*, Science **324**, 1312, 2009.

¹Supported by HU Research Council Grant 08A602010 and 07A601007.

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Date submitted: 12 Nov 2010

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