Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Large area single crystalline graphene growth on copper foil JAEHYUCK JUNG, HOANG DANH PHAN, LEE CHANGGU, Sungkyunkwan Univ, GRAPHENE ENGINEERING LAB TEAM — Graphene synthesis methods using chemical vapor deposition (CVD) have been developed dramatically in these years but still it is challenging to make large size single crystal grains which have similar properties with pristine graphene. Here we report a pita-pocket method of growing large area single crystalline graphene on copper foil. We made holes on top of the closed copper pocket to provide stable gas flow inside of pocket, and copper domains with (111) crystal orientation, which gives an advantage for hexagonal graphene crystal growth, were formed continuously during synthesis. Liquid crystal analysis and electron backscatter diffraction (EBSD) were used to observe the copper crystallographic orientation. Also we compared with a traditional pocket method and an opened flat copper foil method. Graphene from the other methods had poly-crystalinity with different orientation in contrast to graphene from the hole-pocket method.

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Date submitted: 06 Nov 2015 Electronic form version 1.4