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High mobility monolayer graphene over a 150mm substrate JINSEONG HEO, YUN SUNG WOO, DAVID H. SEO, HYUN-JONG CHUNG, SUNAE SEO, Samsung Advanced Institute of Technology, GRAPHENE FET TEAM — We report the fabrication of monolayer graphene field effect devices over a 150 mm substrate. Using Cu-Ni multilayer growth substrates with Inductively Coupled Plasma-Enhanced Chemical Vapor Deposition (ICPCVD) at 700?, we were able to obtain unprecedented uniformity of monolayer graphene over the entire substrate, confirmed with Raman spectroscopic mapping after metal etching and transfer process. Mobility up to 9,000 cm2V-1s-1 was measured at room temperature by 4-probe technique and temperature dependent characteristics of sample resistivity will also be discussed.

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