replacing MAR16-2015-007099 Abstract Submitted

for the MAR16 Meeting of
The American Physical Society

Transport measurement of Li doped monolayer graphene ALI KHADEMI, EBRAHIM SAJADI, PINDER DOSANJH, JOSHUA FOLK, Department of Physics and Astronomy, University of British Columbia, Vancouver, BC, V6T1Z1, Canada, ALEXANDER STHR, STIVEN FORTI, ULRICH STARKE, Max Planck Institute for Solid State Research, 70569 Stuttgart, Germany — Lithium adatoms on monolayer graphene have been predicted to induce superconductivity with a critical temperature near 8 K [1], and recent experimental evidence by ARPES indicates a critical temperature nearly that high [2]. Encouraged by these results, we investigated the effects of lithium deposited at cryogenic temperatures on the electronic transport properties of epitaxial and CVD monolayer graphene down to 3 K. The change of charge carrier density due to Li deposition was monitored both by the gate voltage shift of the Dirac point and by Hall measurements, in low and high doping regimes. In the high doping regime, a saturation density of 210^{13} cm^{-2} was observed independent of sample type, initial carrier density and deposition conditions. No signatures of superconductivity were observed down to 3 K. [1] G. Profeta, et al., Nat Phys 8, 131 (2012). [2] B. M. Ludbrook, et al., PNAS 112 (38), 11795–11799 (2015).

Ali Khademi
Univ British Columbia

Date submitted: 06 Nov 2015 Electronic form version 1.4