

Abstract Submitted  
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**Superconductivity in Graphene-Lithium Systems**<sup>1</sup> DAVID GUZMAN, RADI AL-JISHI, Department of Physics and Astronomy, California State University - Los Angeles, HAMAD ALYAHYAEI, Department of Physics and Astronomy, University of California - Riverside — We present first-principles calculations on systems consisting of a few layers of graphene and lithium. In particular, we investigate the evolution of the electron-phonon coupling strength with an increasing number of layers. We find that for intercalated systems such as  $C_6\text{-Li-C}_6$  or  $C_6\text{-Li-C}_6\text{-Li-C}_6$  the electron-phonon coupling is weak. However, for systems of equal number of graphene and lithium layers, such as  $C_6\text{-Li}$  or  $C_6\text{-Li-C}_6\text{-Li}$ , the electron-phonon coupling is strong. We investigate the optimal configuration that yields the highest superconducting transition temperature.

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