Supporting information for

Fabrication of submillimeter-sized single-crystalline graphene arrays by a commercial printing-assisted CVD method

Wei Xu^{ab}, Wei Wang^{a*}, Zhiyong Guo^b, Zhaoping Liu^{a*}

Author address:

^a Key Laboratory of Graphene Technologies and Applications of Zhejiang Province and advanced Li-on Battery Engineering Lab, Ningbo Institute of Materials Technology & Engineering (NIMTE), Chinese Academy of Sciences, Ningbo, Zhejiang, 315201, P. R. China

^b Faculty of Materials Science and Chemical Engineering, Ningbo University, Ningbo, Zhejiang 315211, P.R. China

*Corresponding Author Footnote:

Tel: +86-57486685096, Fax: +86-57486685096,

E-mail: wangwei@nimte.ac.cn, liuzp@nimte.ac.cn



Figure S1. Schematic of CVD process of different samples. Here, the symbol "+" represents that the gases are introduced at the same time, and the symbol "/" represents that the gases are input in sequence. The O_2 originate from the air.



Figure S2. SEM images of (a) original precursor dots on Cu foil, (b) precurosr dots after annealing and (c) graphene arrays with precursors dots in center after CVD process; (d) EDS mapping and (e) EDS spectrum of original precursor dots on Cu foil.



Figure S3. (a) Microscope image of graphene domain with precursor center after CVD process; (b) roughness of precursor center; (c) optical image of graphene domain on Si/SiO2 substrate with large magnification; (d) Raman result of graphene domain in center area as arrowed in (c).



Figure S4. Selected area electron diffraction (SEAD) data on the 12 randomly selected locations of one graphene domain.



Figure S5. Microscope images of precursor dots after annealing process without further CVD process at different annealing atmosphere with different precursor sizes. (Scale bar in all pictures is $200\mu m$)