

Electronic Supplementary Information (ESI)

Structural characterization of individual graphene sheets by arc discharge and their growth mechanisms

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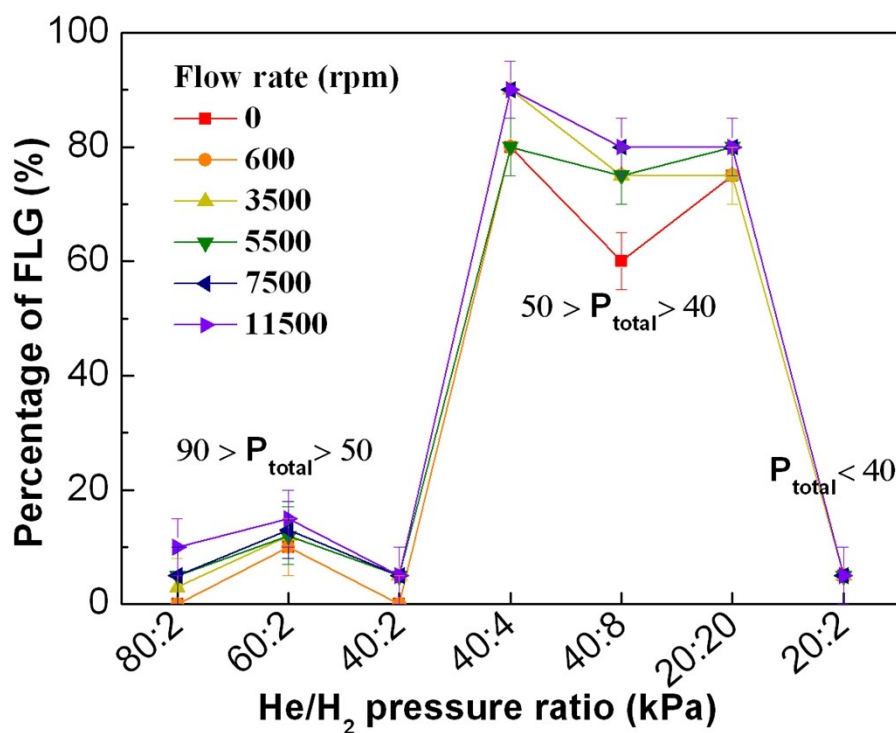


Fig. S1 The percentage of FLG in raw soot as a function of pressure ratio of He/H₂ atmosphere. The percentage is estimated based on TEM observation. P_{total} indicates the total pressure of He/H₂ mixing atmosphere. The medium P_{total} and relatively high ratio of hydrogen lead to high yield of FLG nanosheets.

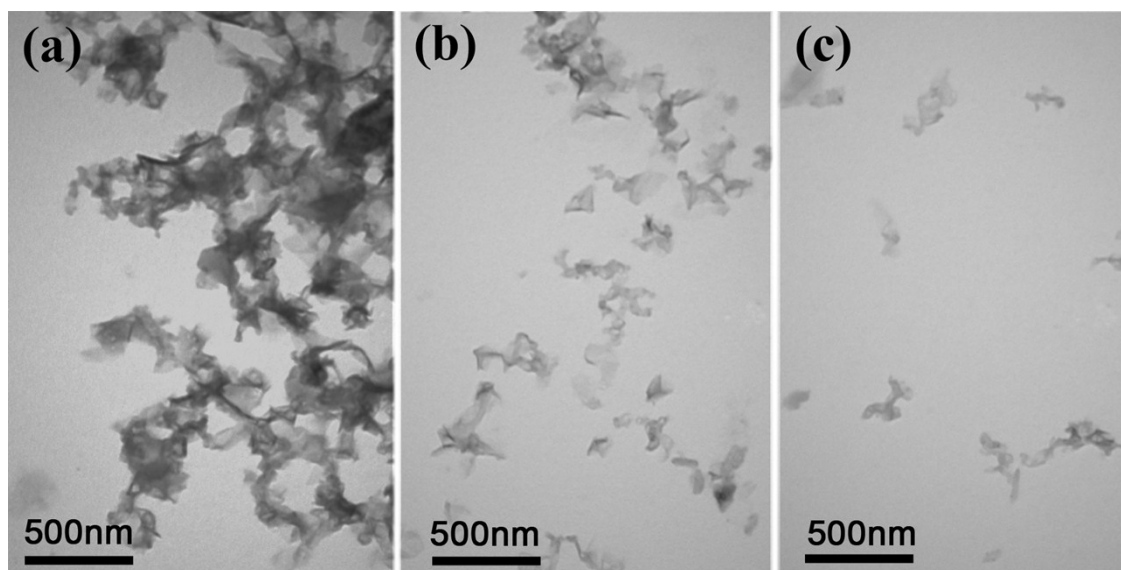


Fig. S2 (a)-(c) TEM images of graphene sheets under centrifugal speeds of 4000, 8000 and 12000 rpm, respectively

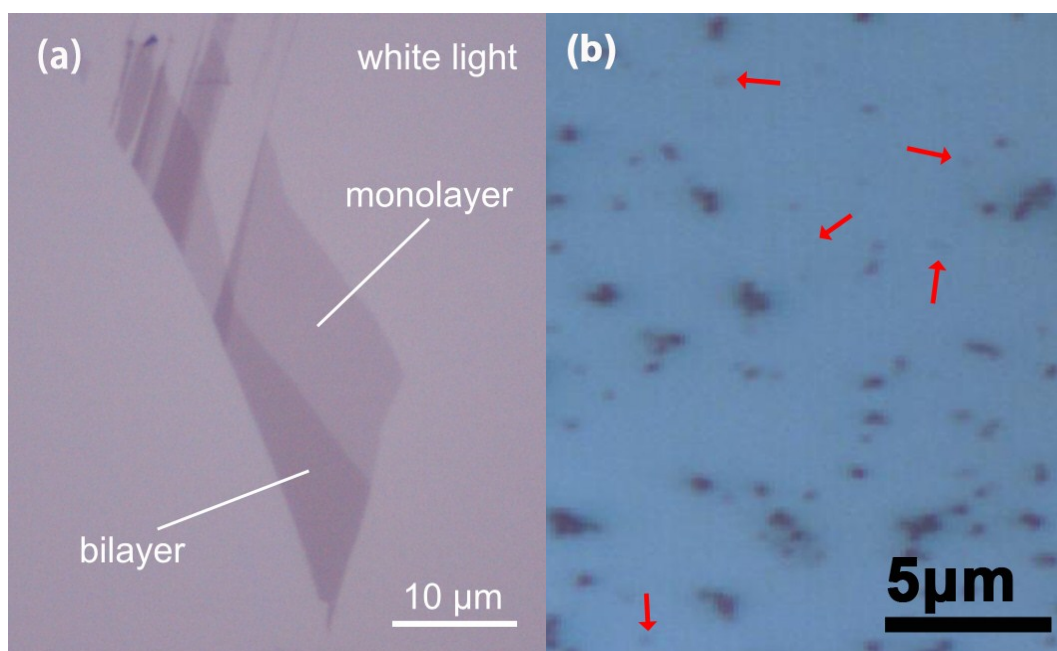


Fig. S3 Size comparison of mechanically exfoliated graphene (a) and arc graphene sheets (b). The image of (a) is acquired elsewhere in the Internet, not a part of this work. The red arrows indicate the almost transparent graphene sheets which were selected as single- or bi-layer samples to be measured.

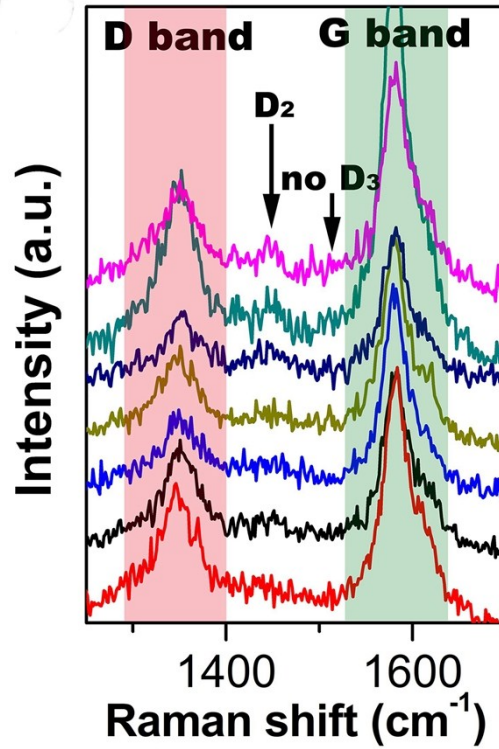


Fig. S4 Raman spectra in the vicinity of G bands, showing one weak scattering feature, D₂ (~1450 cm⁻¹), as indicated by the arrow.

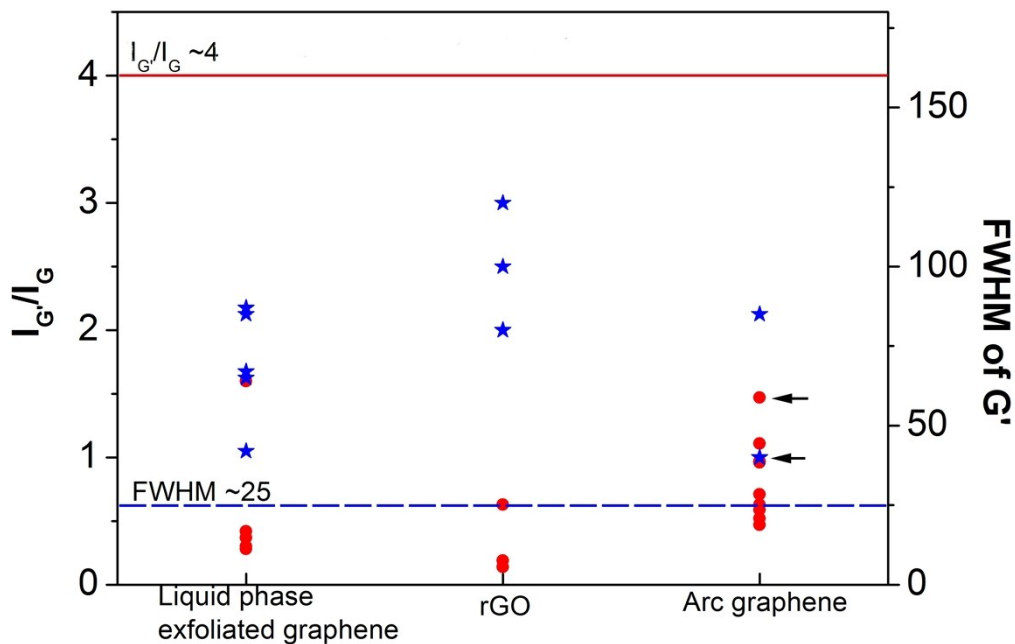


Fig. S5 Comparison of $I_{G'}/I_G$ (solid circles) and FWHM of G' band (stars) of graphene sheets fabricated by liquid-phase exfoliation, reduction of graphene oxide (rGO) and arc discharge. The solid and dash lines denote the values of $I_{G'}/I_G$ and FWHM of mechanically exfoliated SLG in the literature as references, respectively. The arrows indicate the values in this work.