Supporting Information

Hot carriers in epitaxial graphene sheets with and without hydrogen intercalation: role of substrate coupling

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a) b)

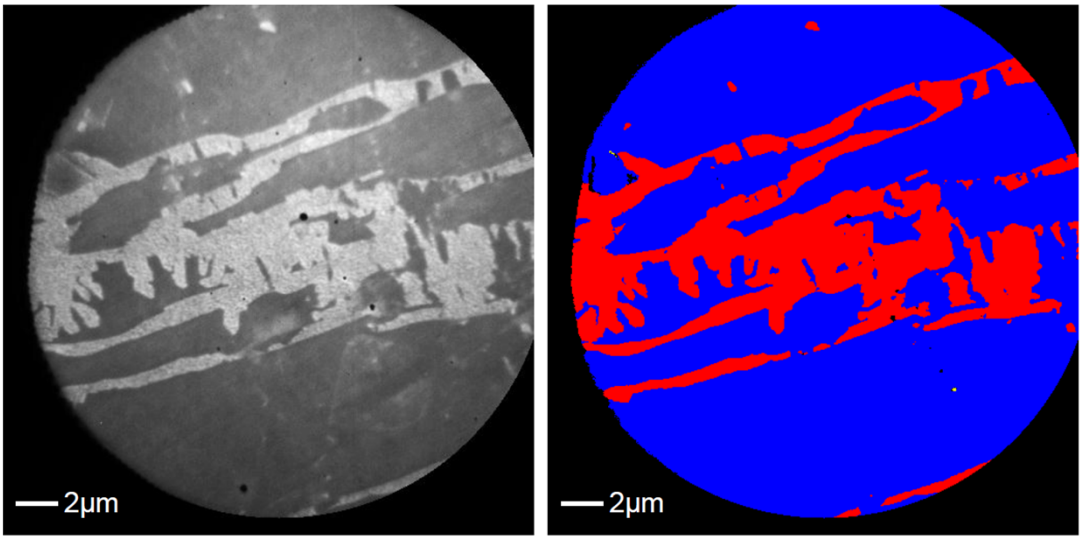

Fig. S1. Low-energy electron microscopy (LEEM) data for a sample produced using similar temperature (1950 °C) and annealing time (1800 s) as used for Sample A: a) LEEM image of graphene on the SiC(0001) surface, obtained using an electron energy of 4.5 eV; b) color image of the same ~25 μm diameter region produced from multiple energy spectra in the electron-energy range from 2 eV to 8 eV, with colors showing conducting graphene layers - monolayer is identified in blue and bilayer is shown as red.

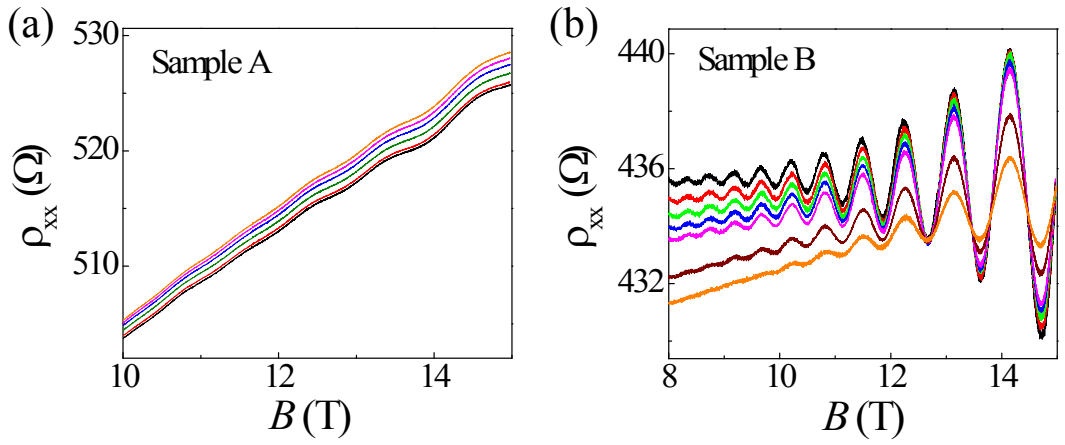

Fig. S2 High-field magneto-resistivity $\rho_{xx}(B)$ at various temperatures T. (a) From top to bottom: T = 2.4, 3, 4, 5, 6, and 7 K. (b) From top to bottom: T = 3, 5, 7, 9, 11, 20, and 30 K.

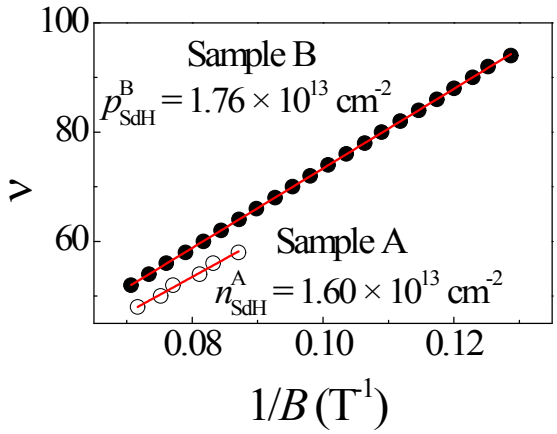

Fig. S3 The filling factor ν as a function of $1/B$.

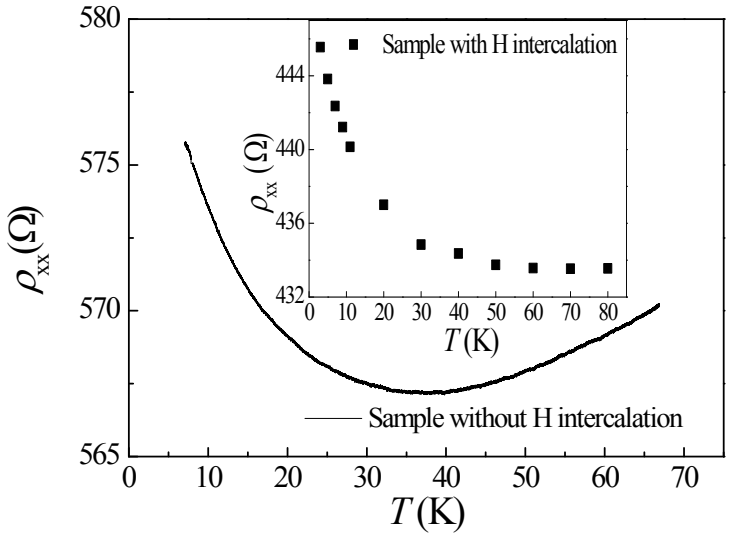

Figure S4 Resistivity measurements ρ_{xx} as a function of temperature T for graphene sample without hydrogen intercalation. The inset shows the resistivity measurements as a function of temperature for graphene sample with hydrogen intercalation.

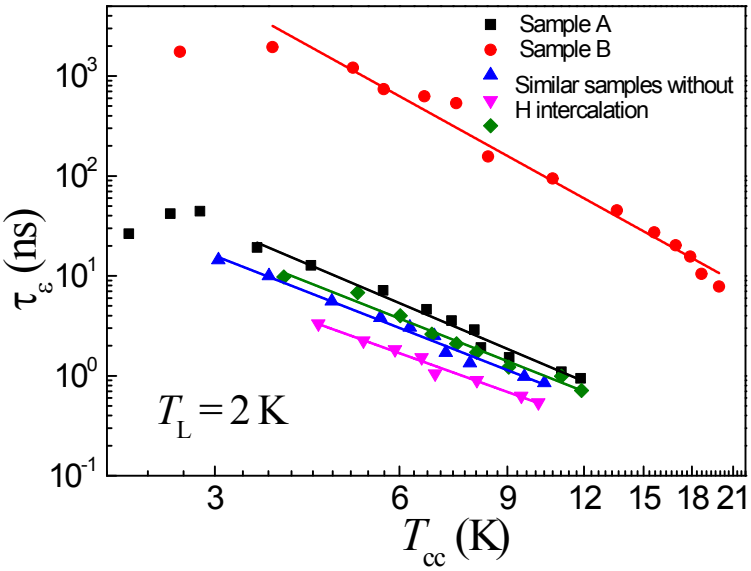

Figure S5 Energy relaxation time τ_ε as a function of charge carrier temperature T_{cc} for graphene samples without hydrogen intercalation and for hydrogen-intercalated graphene sample.