# Supporting Information: Improving the conductivity of graphite-based films by rapid laser annealing

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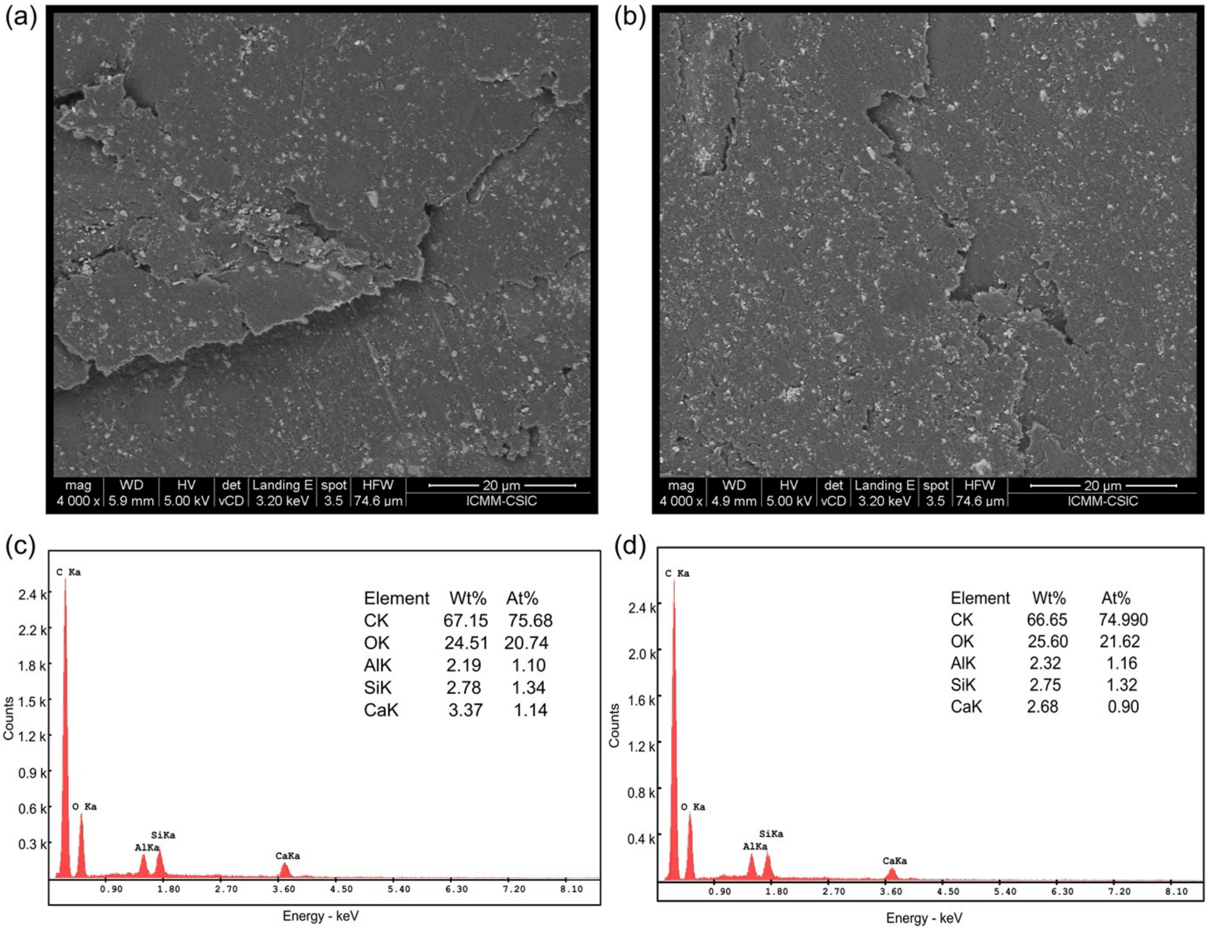


**Figure S1. SEM images and EDX spectra of graphite pencil films on paper.** (a,c) SEM and EDX before annealing, and (b,d) SEM and EDX after laser annealing, respectively. EDX spectra data were measured at a voltage of 15 kV.

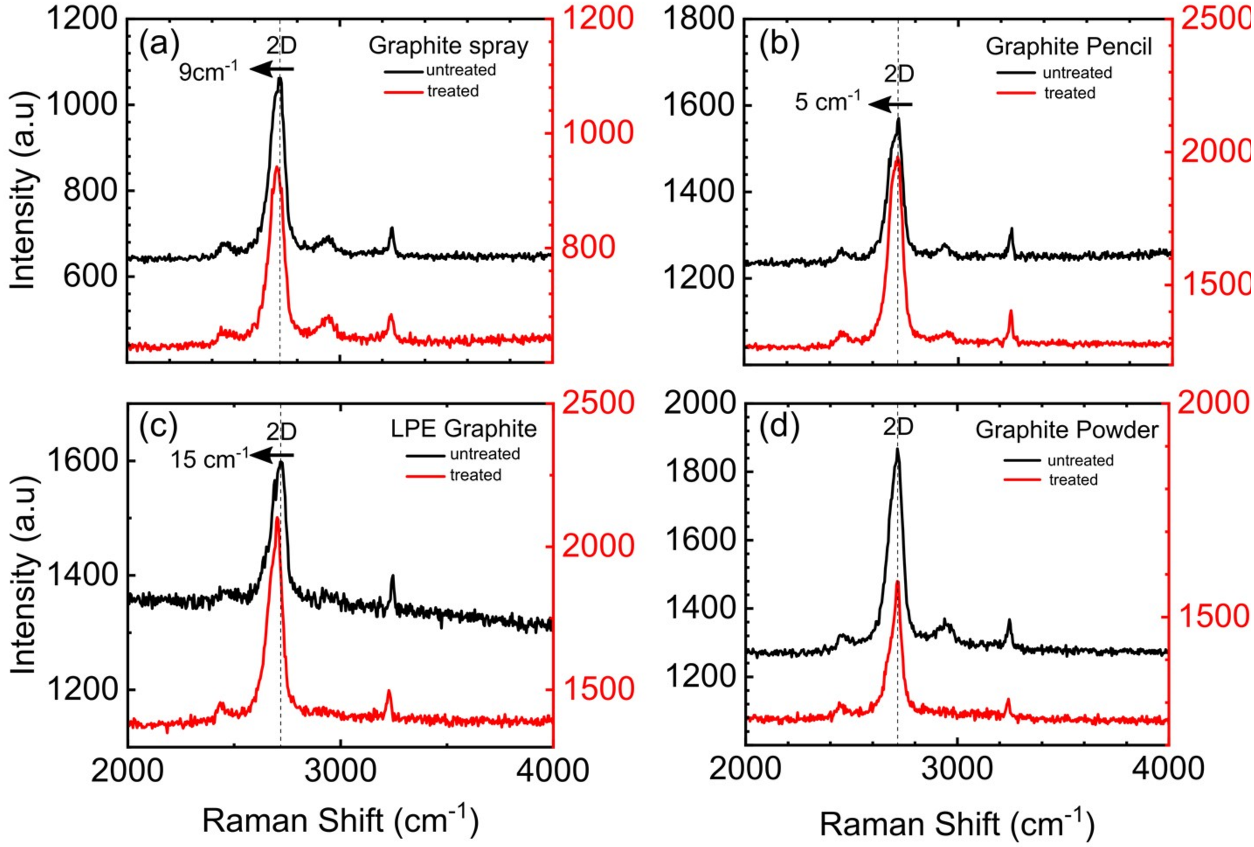


**Figure S2: Raman spectra of the 2D peak for unmodified and laser annealed graphite films.** For the graphite spray (a), graphite pencil (b), and LPE graphite films (c), and redshift in the 2D peak Is observed after laser annealing. For the graphite powder (d), we do not see any change in the Raman 2D peak before and after annealing.

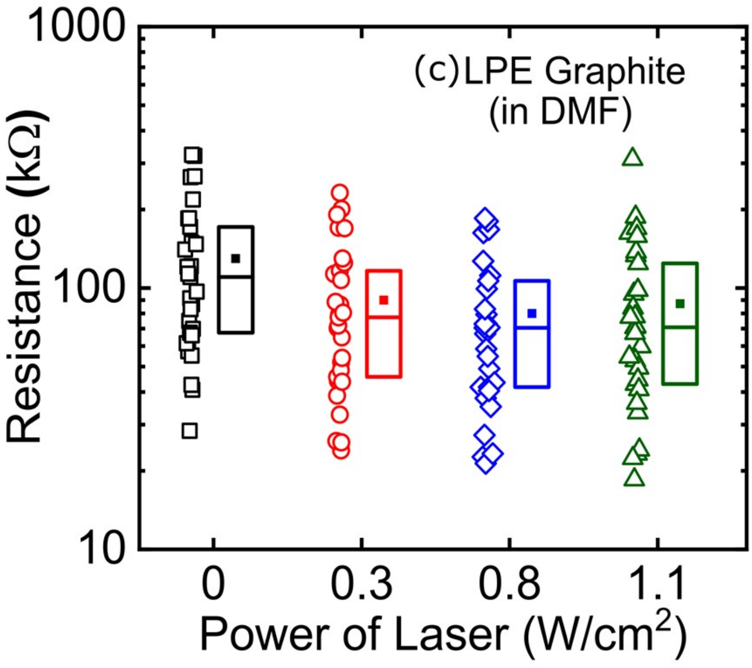


**Figure S3. Laser annealing results for liquid phase exfoliated graphite (in DMF) films on paper.** The two-terminal resistance is plotted as a function of the power density of the scanned laser. The data points represent individual devices measured. The box plot to the right of a set of data points shows the statistics for that set.

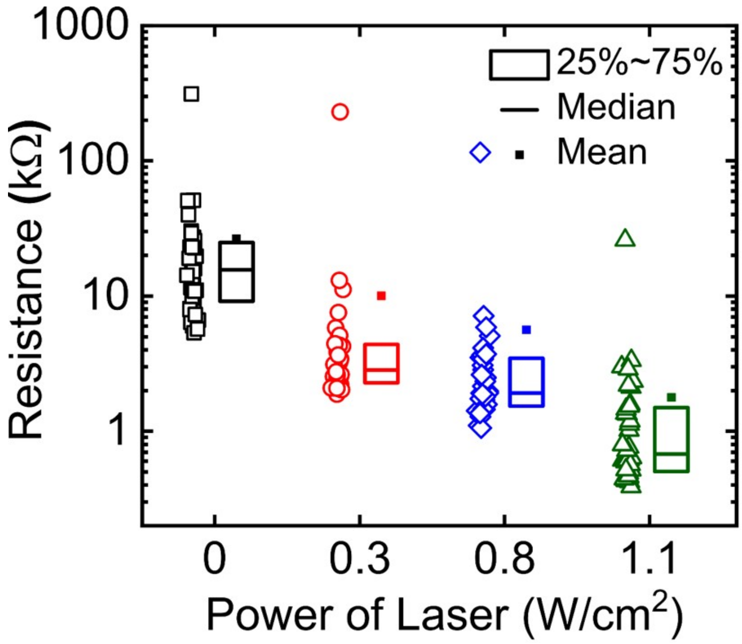


**Figure S4. Laser annealing results for spray-on graphite films on polycarbonate.** The two-terminal resistance is plotted as a function of the power density of the scanned laser. The data points represent individual devices measured. The box plot to the right of a set of data points shows the statistics for that set.

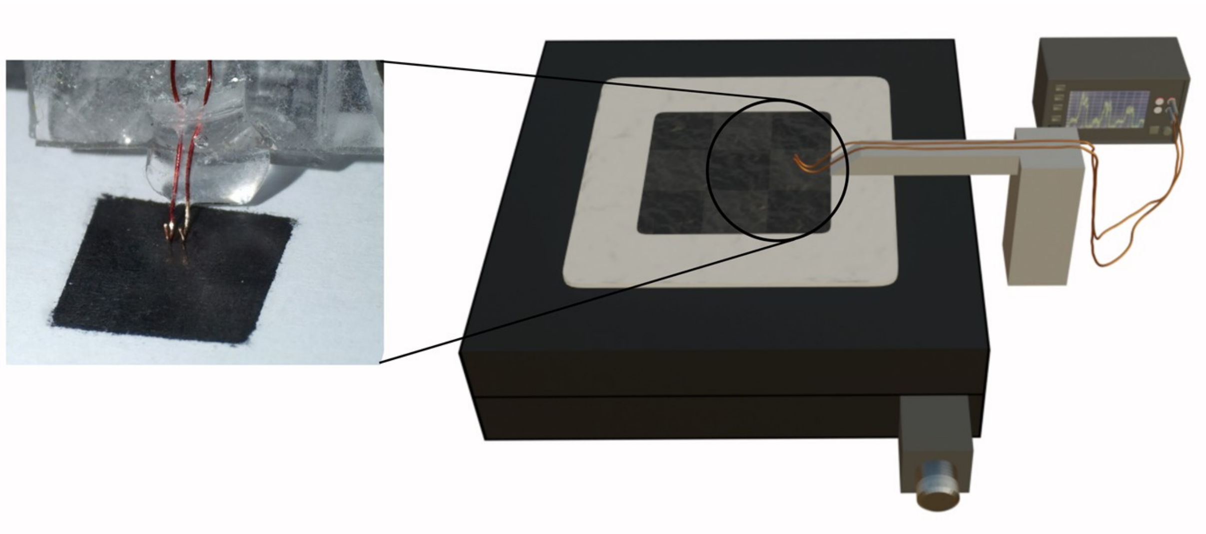

**Figure S5: Schematic diagram of the experimental setup.** A custom-made resistance scanner system is used to scan the surface of pattern annealed samples. Two copper wires are bent into a hook shape to provide spring-loaded contact to the graphite films. The films are placed on a motorized scan stage and moved below the copper contacts to scan the surface. The wires are connected to a source-measure unit to measure current as a function of voltage bias between the wires.