

Approaching completely continuous centimeter scale graphene using copolymer-assisted transfer

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Supplementary Information

S1 Optical image analysis

Figure S1 shows a schematic illustration of areas from which we obtained optical images for our statistical analysis. We chose nine areas from each sample and performed image analysis as described in the main text. We used the imageJ software to calculate the % area coverage based on number of pixels above and below a given color threshold. Figure S2 shows the optical images of the corresponding nine areas and their corresponding threshold adjusted images. For illustration purpose, we present the sample transferred using PMMA+copolymer (Method 3a). We applied the same analysis technique to the other samples (1L & 2L PMMA), and the quantitative results are shown in Table S1.

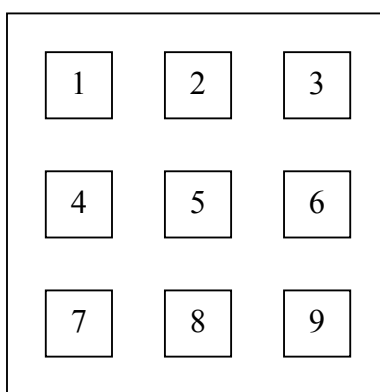


Fig. S1: Schematic illustration of the areas taken for image analysis. Total area is approximately 1 cm × 1 cm.

Table S1: Coverage statistics by transfer method

Sample	Max. Coverage (%)	Min. Coverage (%)	Avg. (%)	Std. Dev.
PMMA+copolymer	99.94	99.77	99.84	0.06
1L PMMA	99.98	96.23	98.25	1.34
2L PMMA	99.97	94.21	98.37	2.21

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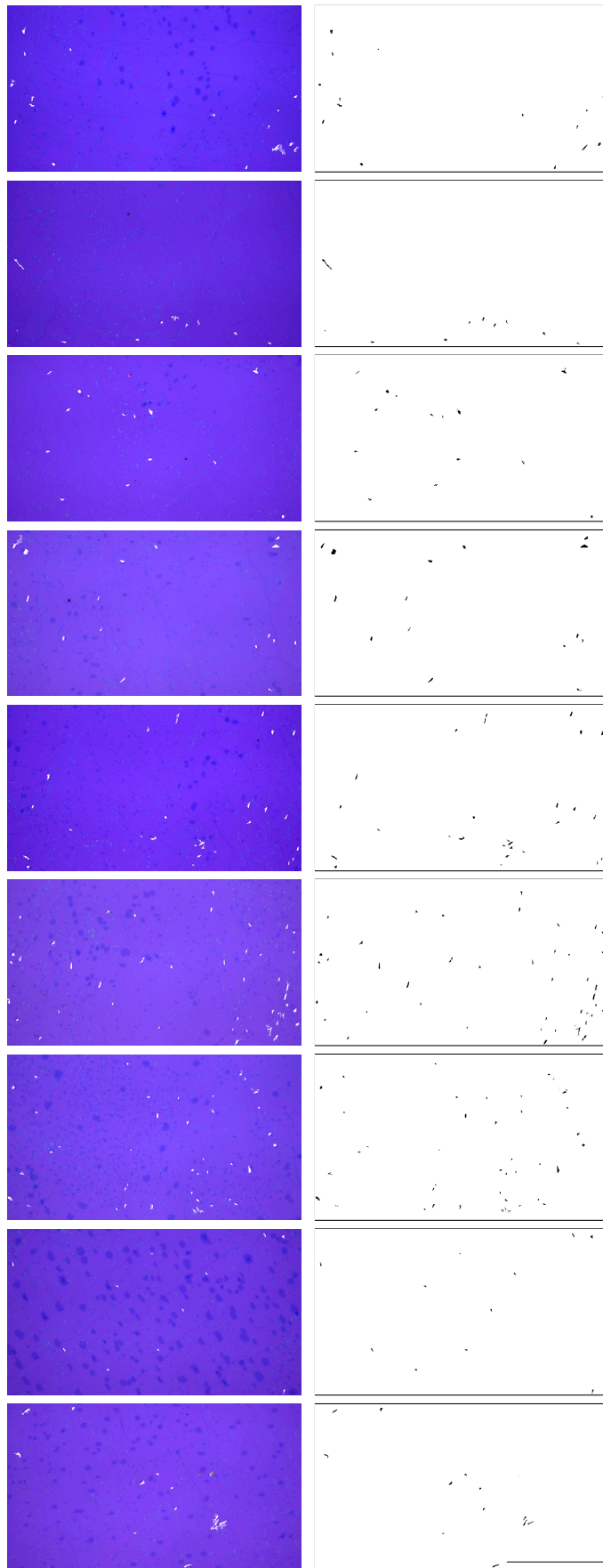


Fig. S2: Optical micrographs and corresponding threshold adjusted images of the same areas from the graphene transferred using Method 3a (PMMA+copolymer). The scalebar is $50\mu\text{m}$, and applies to all images.

S2 Graphene transferred using method 2b

Figure S4 shows a sample transferred using Method 3b, i.e. the copolymer film was spin-coated after transferring the PMMA/graphene onto substrate. Large and small voids, cracks and wrinkles are visible in this approach.

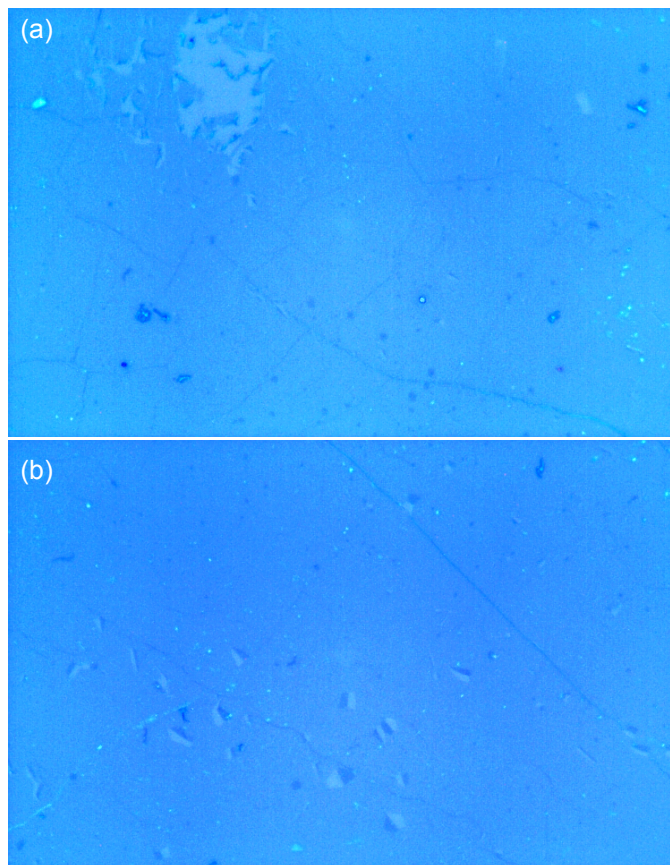


Fig. S3: (a), (b) Optical micrographs of graphene film transferred using Method 3b.

S3 Raman spectra of graphene film on Cu foil

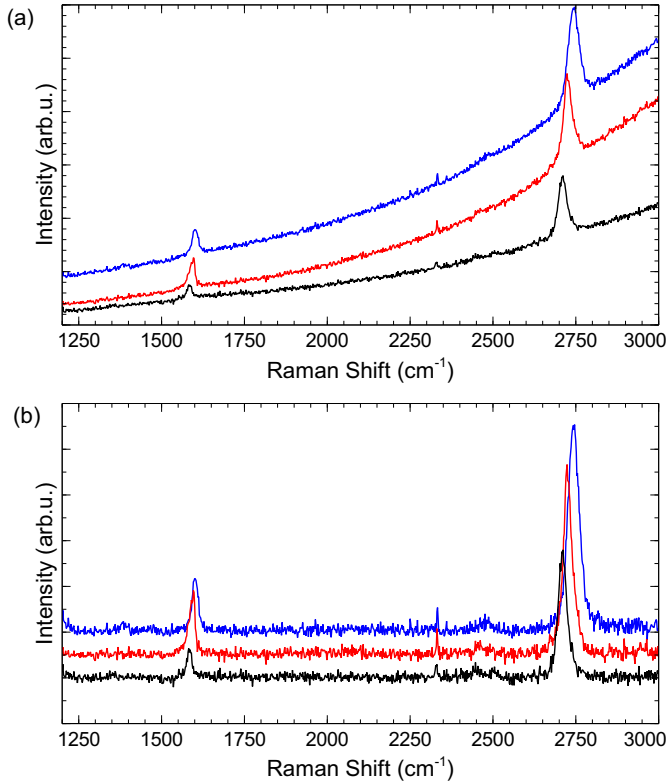


Fig. S4: Raman spectra of graphene films (a) on Cu foil and (b) after subtracting Cu baseline.