Supplementary Material

Silicon oxide nanoparticles grown on graphite by co-deposition of the atomic constituents

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Fig. 1 SR-XPS spectra of the C 1s core-level for samples (a) No-OFlux, (b) Low-OFlux, and (c) High-OFlux at different stages of Si and O codeposition (i–iii). All spectra have been fitted to a single Doniach–Šunjić-Gaussian convolution line-shape with a Shirley background, corresponding to a C sp² component at a binding energy of approximately 284.4 eV. No C–O peaks, although expected at 286.2 eV for O-atom-exposed HOPG, are not observed for any sample. Y-axes have been scaled to obtain equal intensity for the clean HOPG spectra. Residuals are plotted on the same scale.



Fig. 2 SEM images of a SiO_x film on HOPG. (a,b) shows images for the film as grown, while (c-d) shows images of the film following UHV anneal to 1073 K. In (a–c), a graphite flake is seen, producing a shadowing effect for the growth of SiO_x. This results in a well-defined border between regions of different contrast, specifically SiO_x film and clean HOPG, as presented in the main text. (d) demonstrates coverage of the HOPG substrate by the SiO_x film, as generally observed for flat regions of the substrate. In these regions, the film exhibits macroscopic homogeneous distribution.