

Supplementary Materials

The Creation of True Two-Dimensional Silicon Carbide

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Figure S1. (a) Photographs from the SiC-containing vials during the bath sonication process. As shown, during the exfoliation process, the bath temperature was kept below 50 °C (b).

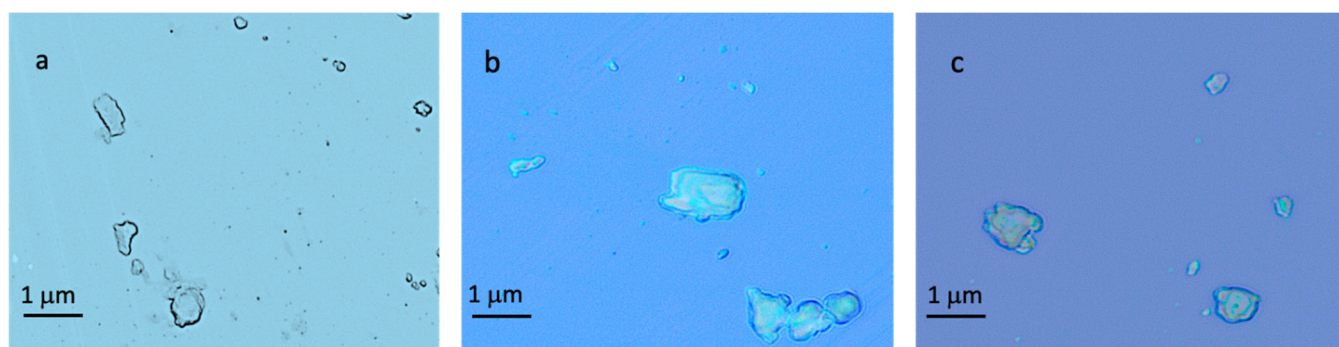


Figure S2. Optical microscopy images of the exfoliated SiC nanoflakes. (a): on glass slide, and (b,c) on SiO₂/Si substrates.

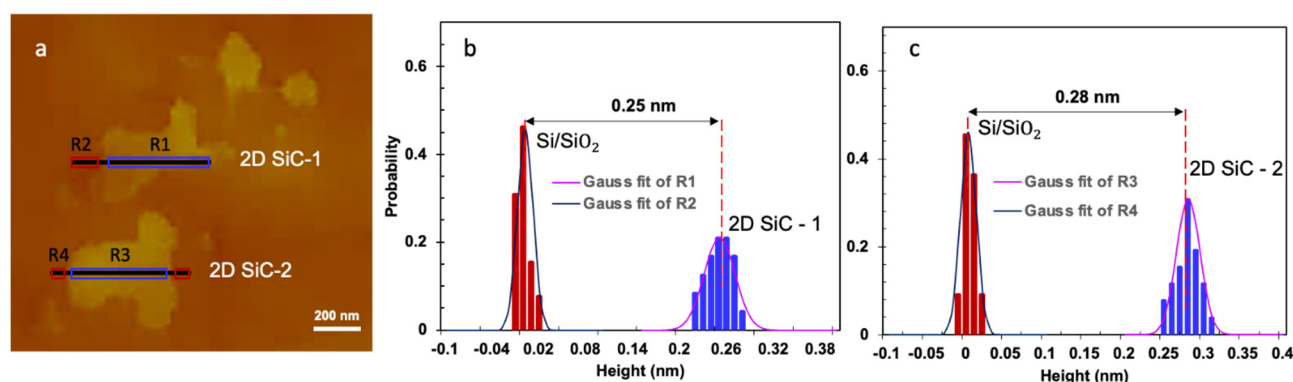


Figure S3. (a) AFM image of the exfoliated SiC nanosheets, and (b,c) Height histograms acquired from 2D SiC nanosheets

(SiC-1, and SiC- 2), and SiO₂ substrate. The heigh separation between the peaks of the 2D SiC samples, and silicon wafer are 0.25 (SiC-1) and 0.28 nm (SiC-2), which is consistent with our AFM measurements, further confirming the monolayer nature of the presented nanosheets.

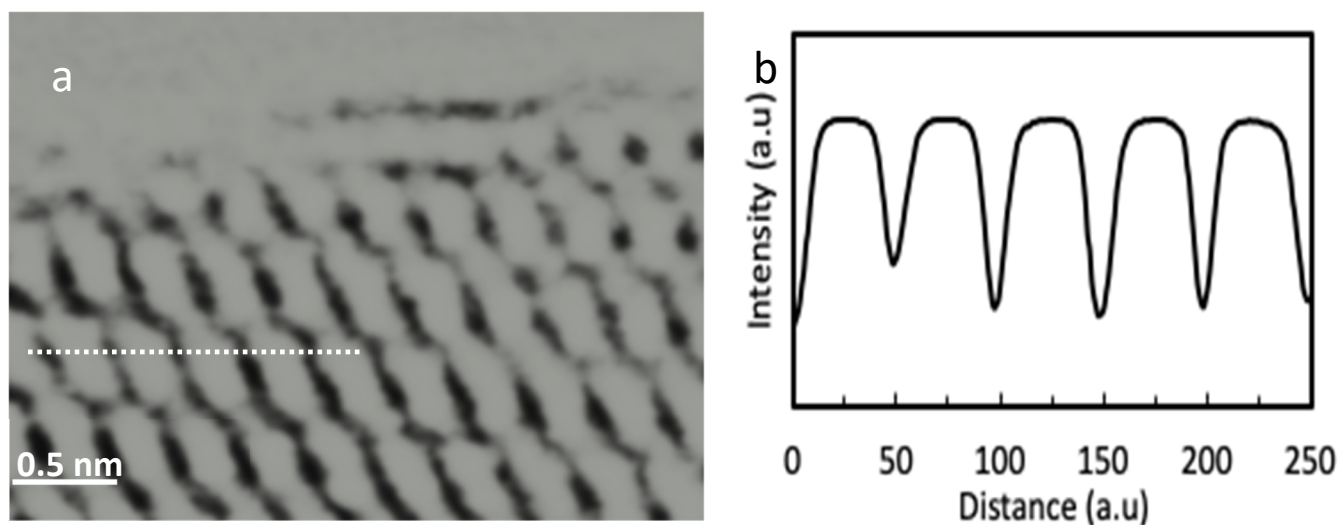


Figure S4. (a) TEM imager from a 2D SiC sample, and (b) relative intensity profile along the dot line in (a).

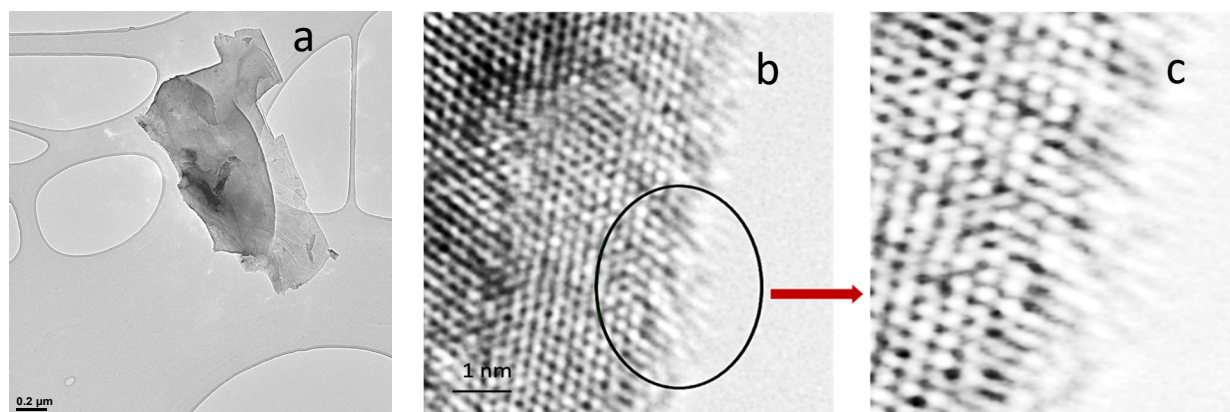


Figure S5. (a) low magnification TEM image of the exfoliated SiC nanosheets. (b,c) HRTEM images from another 2D SiC sample. The HRTEM image from the edges of 2D SiC clearly confirms high crystallinity nature of the created nanosheets.

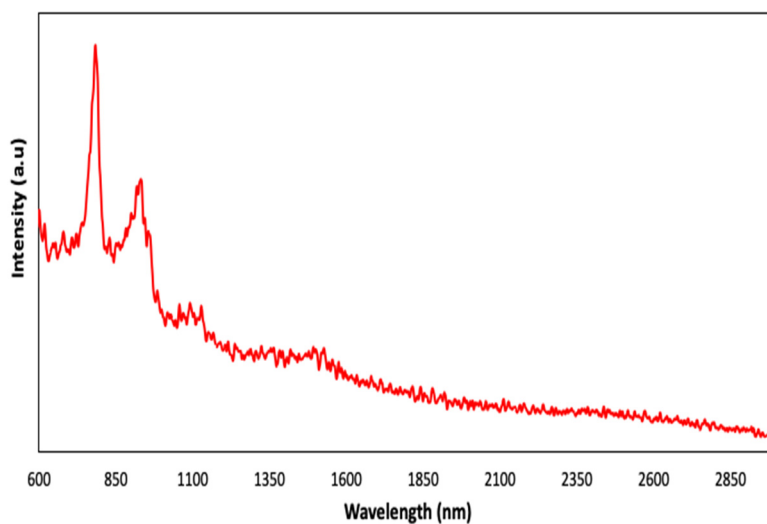


Figure. S6. Raman spectrum from a 2D SiC sample.

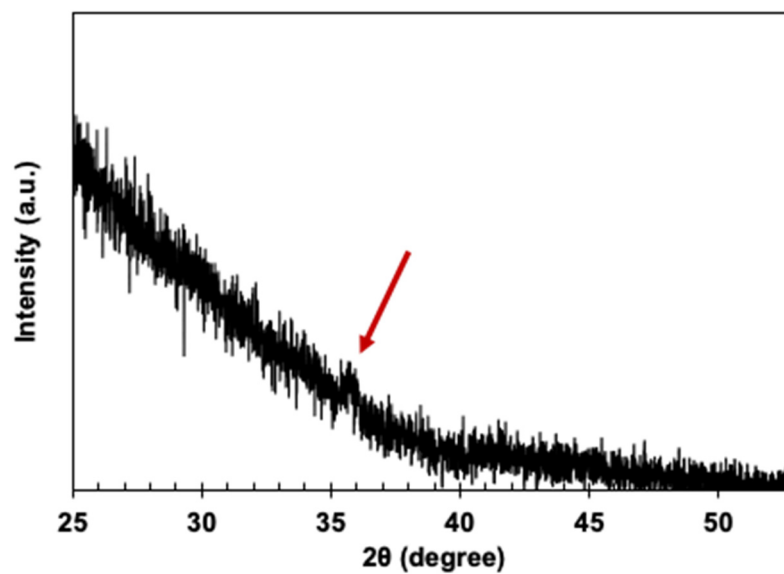


Figure S7. XRD pattern from 2D SiC dispersions. This pattern was acquired after placing more than 50 drops, on top of each other, on a glass substrate. No peaks were observed, when only few drops were placed on the substrate.