

Supplementary information

Characteristics of Graphene Quantum Dots Determined by Edge Structures: Three kinds of Dots Fabricated by Using Thermal Plasma Jet

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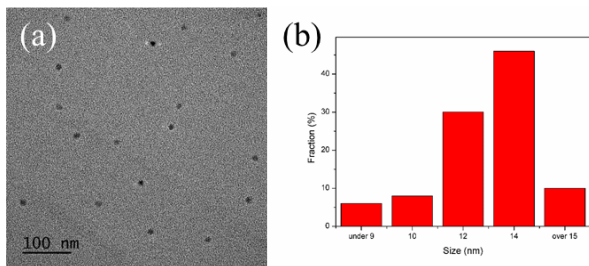


Figure S1. (a) A low-resolution TEM image and (b) size distribution histogram of armchair GQDs. The average size is about 13 nm.

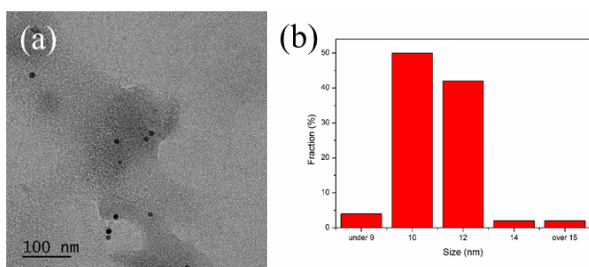


Figure S2. (a) A low-resolution TEM image and (b) size distribution histogram of zigzag GQDs. The average size is about 11 nm.

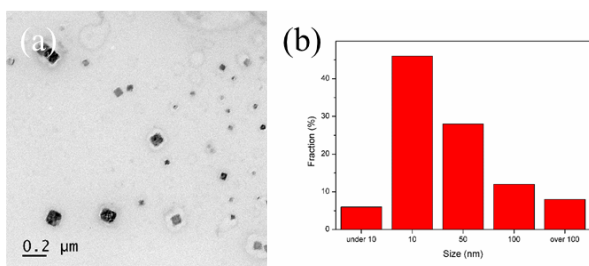


Figure S3. (a) A low-resolution TEM image and (b) size distribution histogram of hybrid GQDs. The average size is about 53 nm.

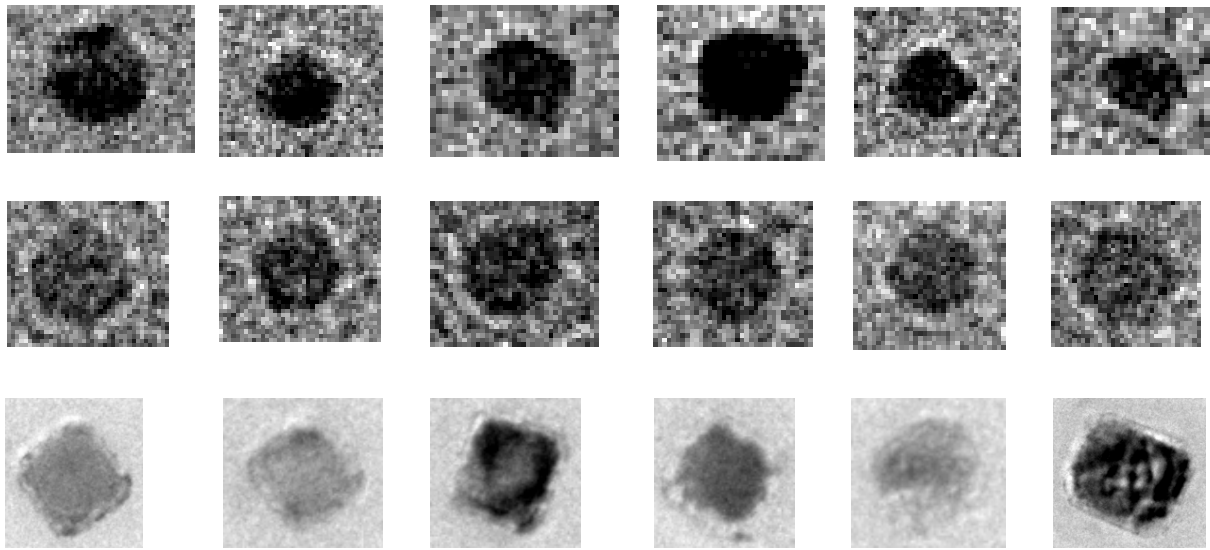


Figure S4. Shapes of (top row) armchair, (middle row) zigzag, and (bottom row) hybrid GQDs.

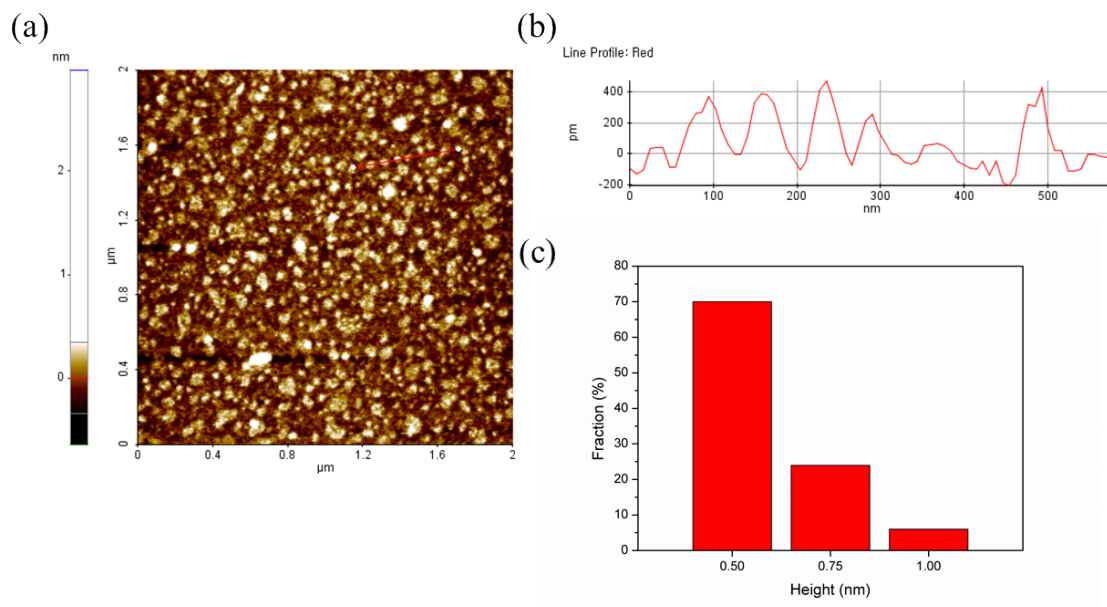


Figure S5. AFM image (a), height profile (b), and height distribution histogram (c) of armchair GQDs.

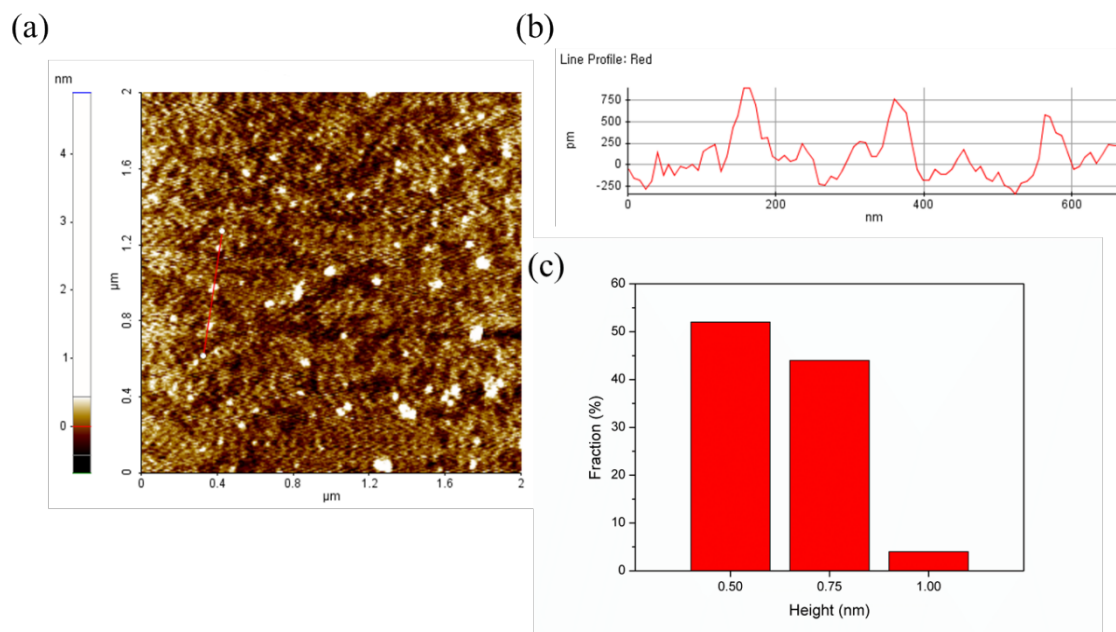


Figure S6. AFM image (a), height profile (b), and height distribution histogram (c) of zigzag GQDs.

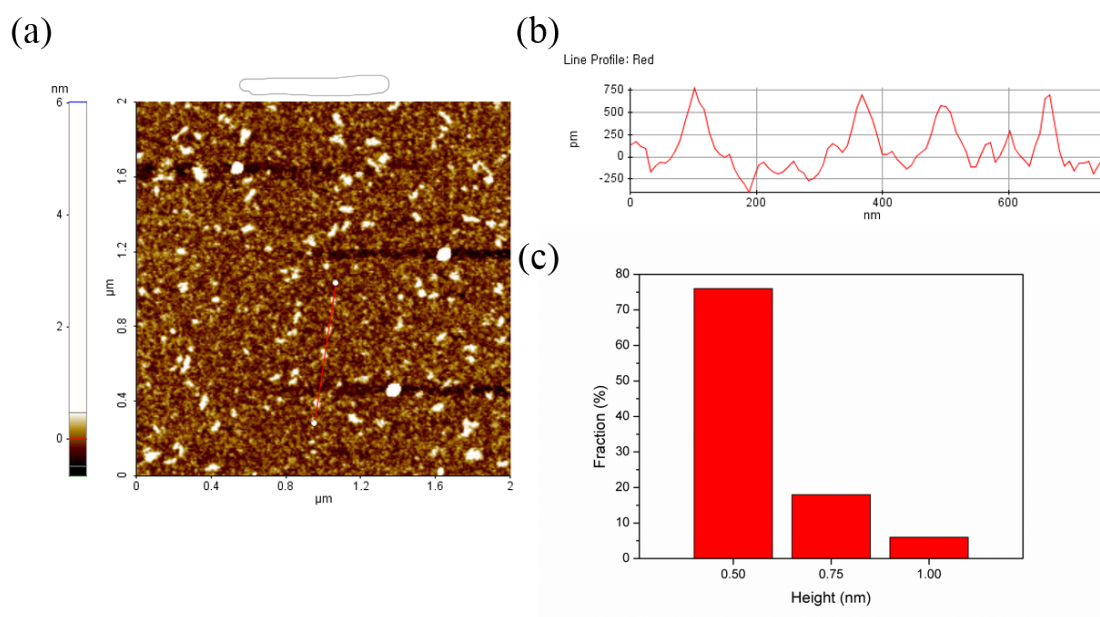


Figure S7. AFM image (a), height profile (b), and height distribution histogram (c) of hybrid GQDs.

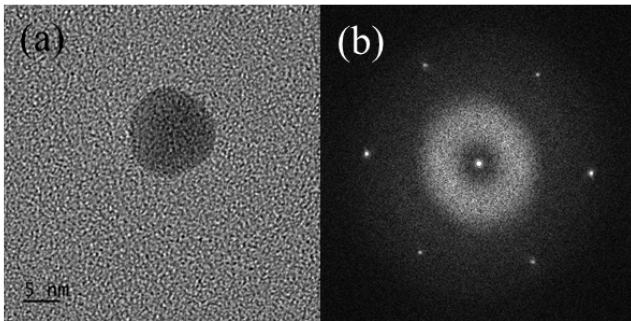


Figure S8. HRTEM image (a) and the 2D FFT pattern (b) of an armchair GQD.

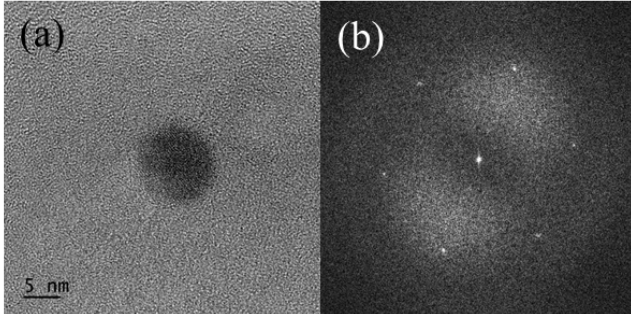


Figure S9. HRTEM image (a) and the 2D FFT pattern (b) of a zigzag GQD.

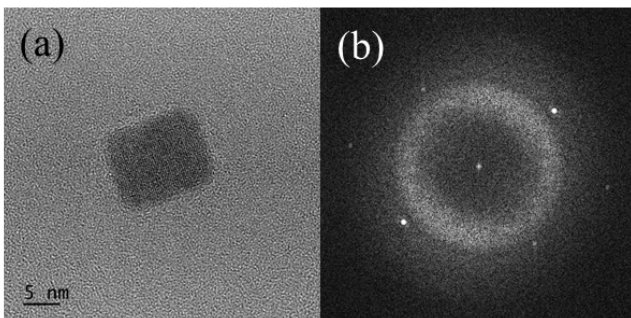


Figure S10. HRTEM image (a) and the 2D FFT pattern (b) of a hybrid GQD.

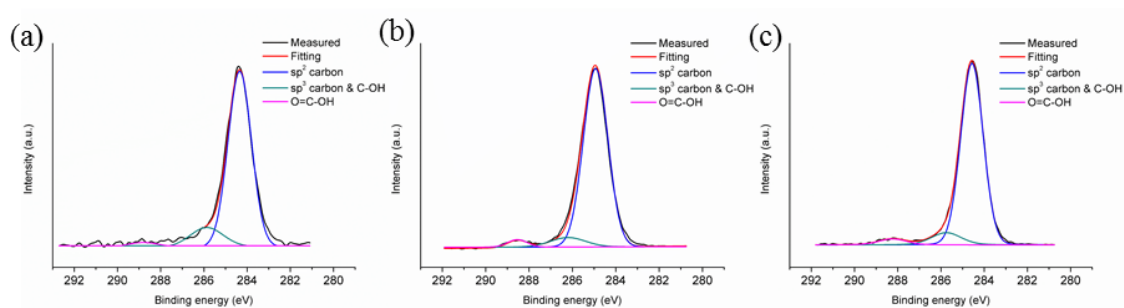


Figure S11. XPS C 1s spectra of (a) armchair, (b) zigzag, and (c) hybrid GQDs.

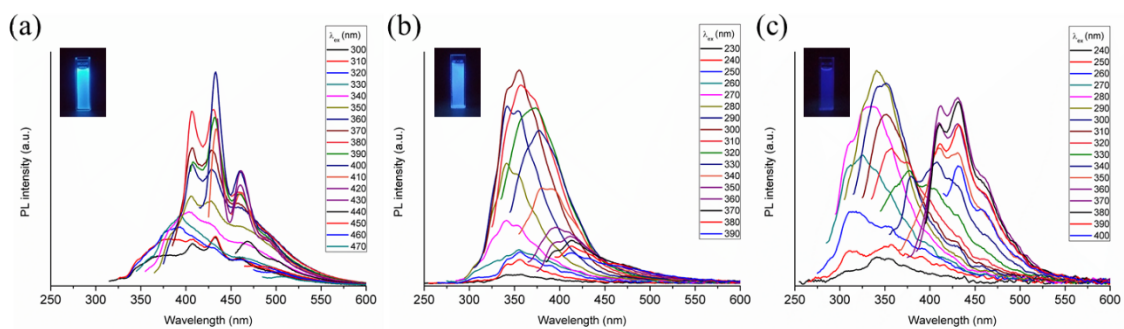


Figure S12. PL spectra of (a) armchair, (b) zigzag, and (c) hybrid GQD suspensions in ethanol with varying the excitation wavelength (λ_{ex}). The luminescence picture of each kind of GQD suspension taken under 365 nm UV light is inserted.

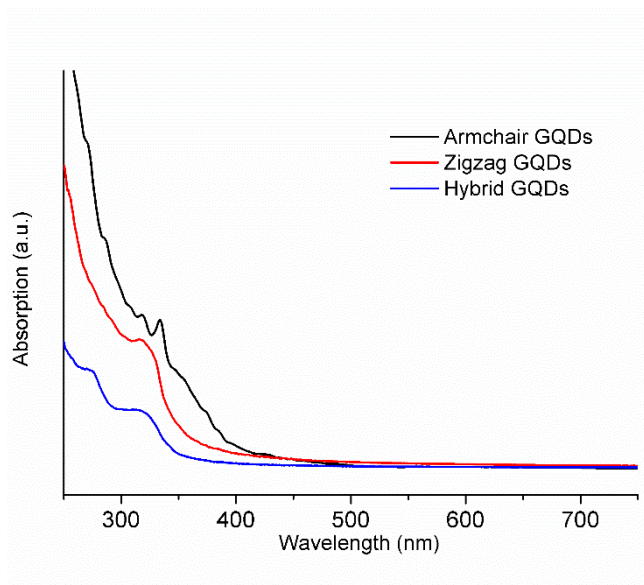


Figure S13. UV-vis absorption spectra of armchair, zigzag, and hybrid GQD suspensions in ethanol. The intensity difference is due to the concentration difference of three suspensions.