

Supporting Information

All-solution Processed High Performance Inverted Quantum Dot Light Emitting Diodes

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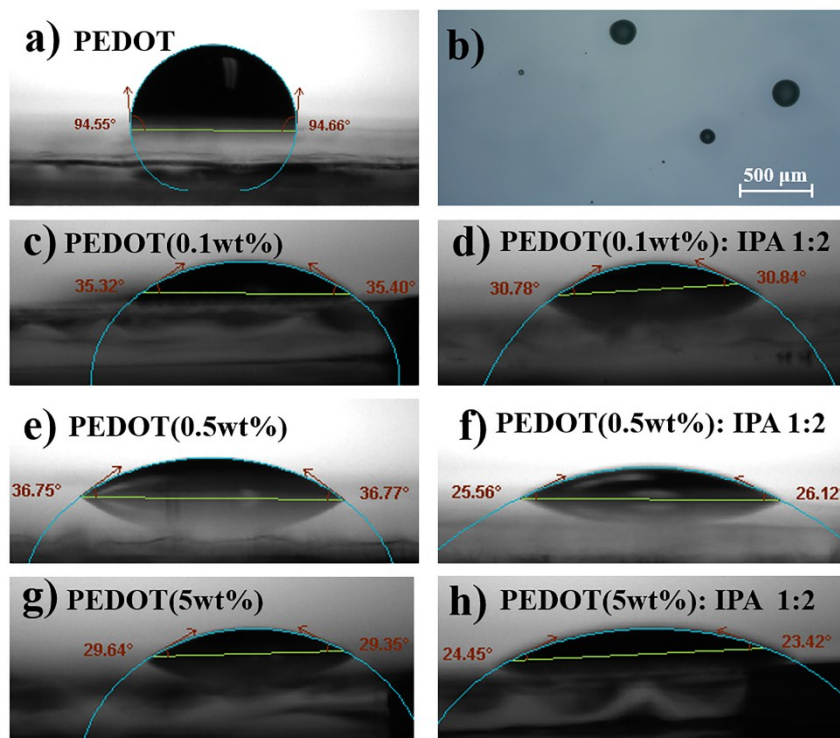


Figure S1. a); c)-h) contact angle images of different PEDOT; b) The micrograph of PEDOT on PVK.

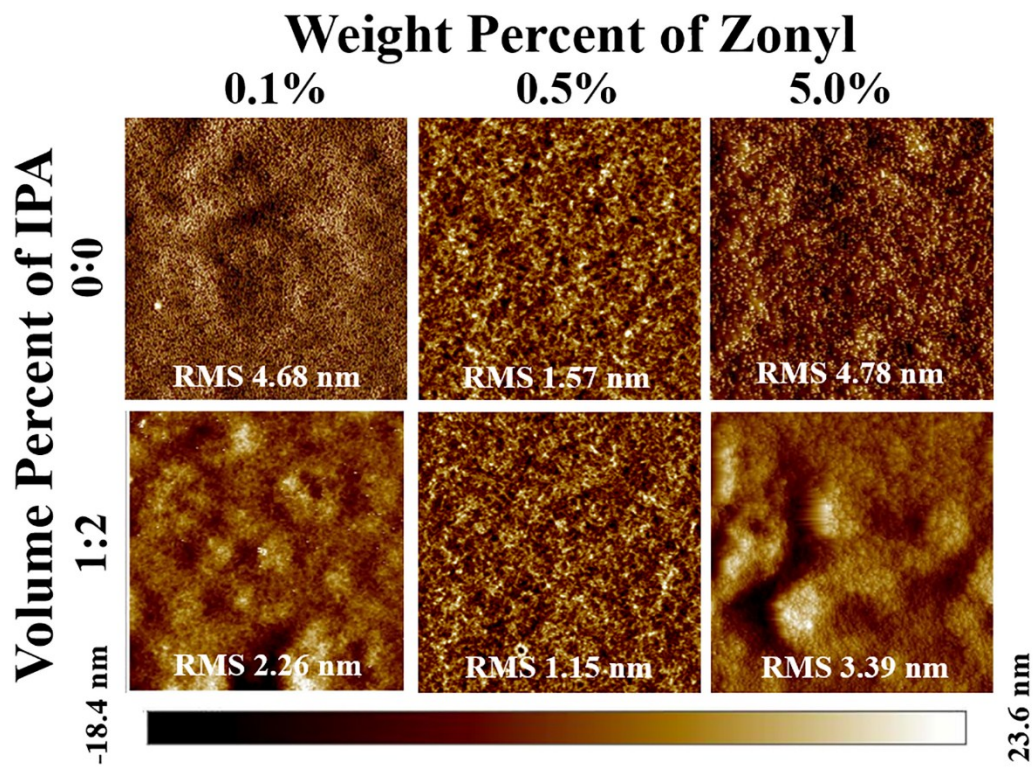


Figure S2. The AFM images of difference PEDOT.

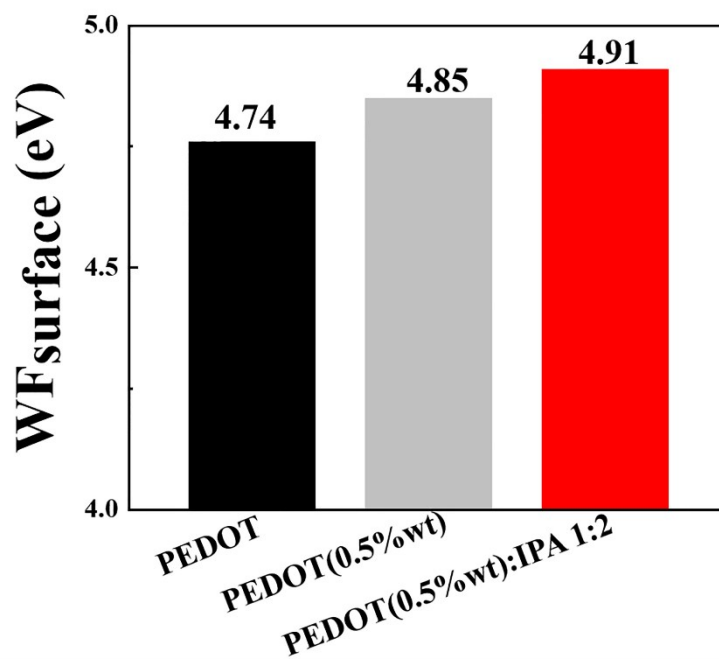


Figure S3. The work function of different PEDOT:PSS.

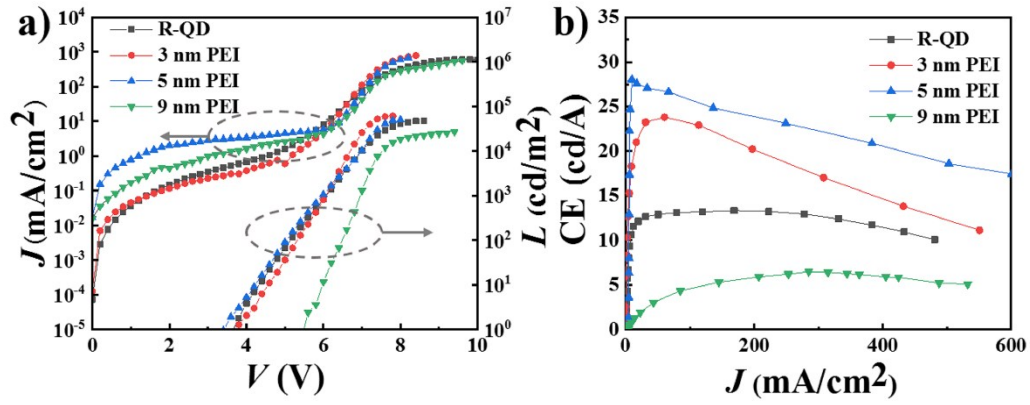


Figure S4. a) J - V - L characteristics. b) The dependence of CE on the current density of R-QLED with difference thickness PEI.

Table S1. Device performance of R-QLED with difference thickness PEI.

| Devices | Voltage (V) | | Current efficiency (cd/A) | EQE (%) | Luminance (cd/m ²) |
|----------|-------------|--------------|---------------------------|---------|--------------------------------|
| | V_T | at L_{max} | max | max | max |
| w/o PEI | 3.8 | 8.6 | 13.4 | 9.78 | 4.84×10^4 |
| 3 nm PEI | 3.6 | 8.2 | 23.8 | 17.5 | 5.92×10^4 |
| 5 nm PEI | 3.4 | 8.0 | 28.1 | 20.6 | 5.06×10^4 |
| 9 nm PEI | 5.4 | 9.8 | 6.5 | 4.77 | 2.69×10^4 |

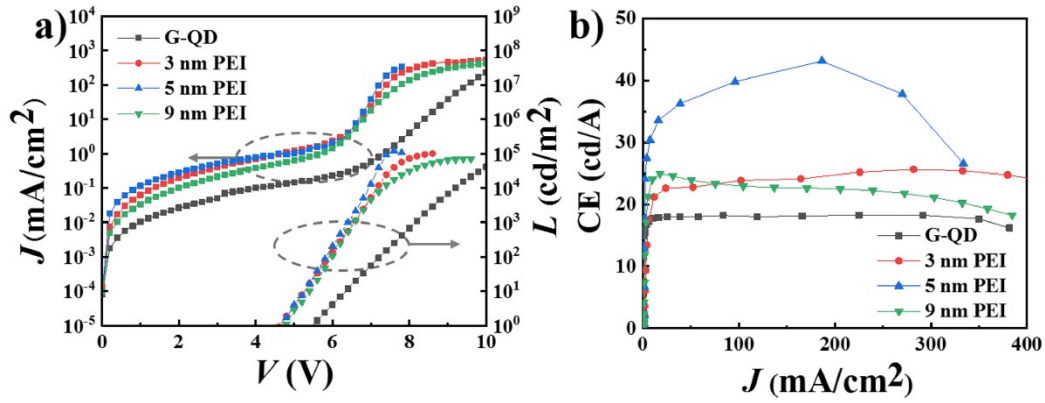


Figure S5. a) J - V - L characteristics. b) The dependence of CE on the current density of G-QLED with difference thickness PEI.

Table S2. Device performance of G-QLED with difference thickness PEI.

| Devices | Voltage (V) | | Current efficiency (cd/A) | EQE (%) | Luminance (cd/m ²) |
|----------|-------------|--------------|---------------------------|---------|--------------------------------|
| | V_T | at L_{max} | max | max | max |
| | w/o PEI | 5.4 | 10.6 | 18.2 | 4.55 |
| 3 nm PEI | 4.6 | 8.6 | 25.6 | 6.17 | 10.0×10^4 |
| 5 nm PEI | 4.6 | 7.2 | 43.1 | 10.4 | 1.21×10^5 |
| 9 nm PEI | 4.8 | 9.6 | 22.7 | 5.48 | 7.00×10^4 |

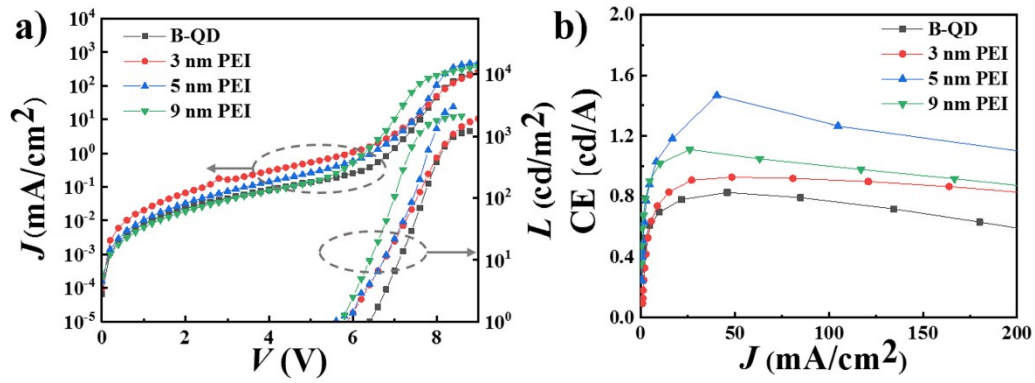


Figure S6. a) J - V - L characteristics. b) The dependence of CE on the current density of B-QLED with difference thickness PEI.

Table S3. Device performance of B-QLED with difference thickness PEI.

| Devices | Voltage (V) | | Current efficiency (cd/A) | EQE (%) | Luminance (cd/m ²) |
|----------|-------------|--------------|---------------------------|---------|--------------------------------|
| | V_T | at L_{max} | max | max | max |
| w/o PEI | 6.4 | 8.8 | 0.82 | 1.70 | 1.20×10^3 |
| 3 nm PEI | 5.8 | 9.4 | 0.93 | 1.93 | 2.07×10^3 |
| 5 nm PEI | 5.6 | 8.4 | 1.42 | 2.95 | 2.96×10^3 |
| 9 nm PEI | 5.8 | 8.6 | 1.11 | 2.31 | 2.10×10^3 |

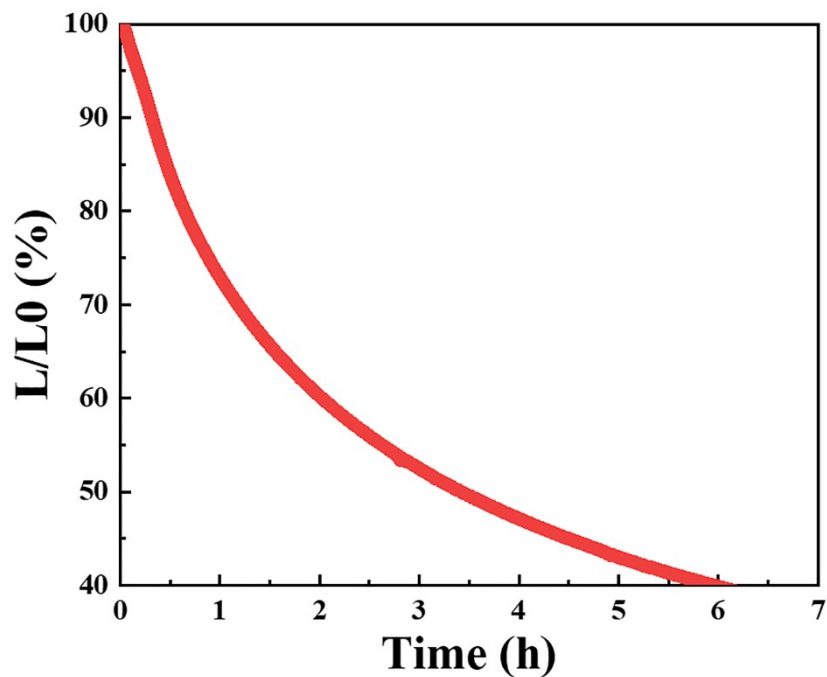


Figure S7. Stability data for R-QLED device. The initial brightness of pristine R-QLED device is 5956 cd/m². The initial brightness of R-QLED device with 5 nm PEI is 7440 cd/m².

Table S4. Multi-exponential fitting parameters for PL decays of QD with various thickness PEI.

| PEI thickness (nm) | A ₁ (%) | τ ₁ (ns) | A ₂ (%) | τ ₂ (ns) | A ₃ (%) | τ ₃ (ns) | τ _{ave} (ns) |
|--------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|-----------------------|
| 0 | 4.4 | 44.6 | 65.8 | 9.23 | 29.8 | 4.46 | 9.37 |
| 3 | 7.2 | 47.2 | 67.2 | 8.49 | 25.6 | 3.37 | 9.98 |
| 5 | 9.2 | 47.9 | 64.9 | 8.15 | 25.9 | 2.91 | 10.4 |
| 9 | 9.4 | 55.9 | 60.4 | 8.66 | 30.2 | 3.33 | 11.4 |