

Supporting information

Regulation of multi-color fluorescence of carbonized polymer dots by multiple contributions of effective conjugate size, surface state, and molecular fluorescence

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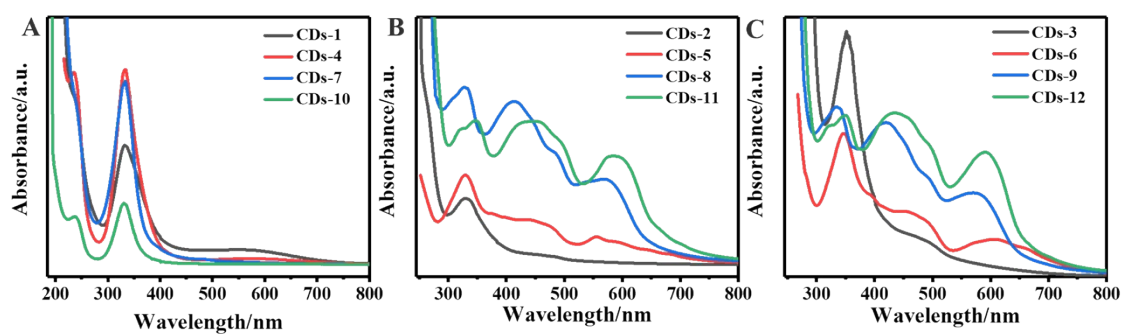
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Table S1. CDs prepared under different conditions

Time of reaction	6 h			10 h
Temperature	120 °C	160 °C	200 °C	160 °C
Solvent				
H ₂ O	CDs-1	CDs-4	CDs-7	CDs-10
DMF	CDs-2	CDs-5	CDs-8	CDs-11
DMF+HNO ₃	CDs-3	CDs-6	CDs-9	CDs-12

Table S2. Elemental content at different CDs.

	C	N	O
CDs-1	50.34	11.73	37.92
CDs-2	63	12.53	24.47
CDs-3	62.73	12.56	24.71
CDs-4	62.62	8.22	29.16
CDs-5	62.64	15.22	22.14
CDs-6	63.46	15.41	21.13
CDs-7	70.41	7.41	22.18
CDs-8	64.59	17.91	17.49
CDs-9	62.38	19.76	17.85
CDs-10	58.51	11.53	29.96
CDs-11	60.28	17.79	21.93
CDs-12	61.97	17.35	20.69

**Figure S1.** UV-vis spectra of CDs synthesized with the same reaction solvent and different reaction temperatures and reaction times: (A) H₂O; (B) DMF; (C) DMF+HNO₃.

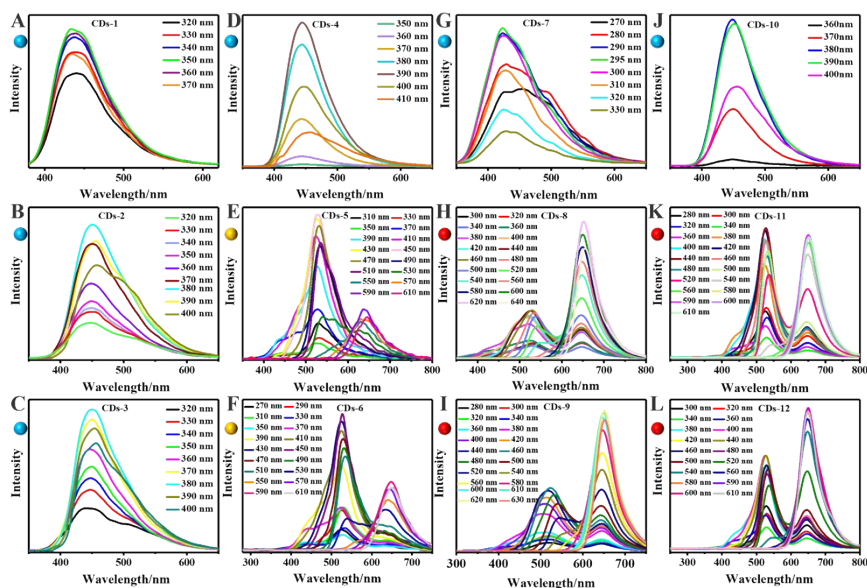


Figure S2. The 2D fluorescence emission spectra of A) CDs-1, B) CDs-2, C) CDs-3, D) CDs-4, E) CDs-5, F) CDs-6, G) CDs-7, H) CDs-8, I) CDs-9, J) CDs-10, K) CDs-11 and L) CDs-12.

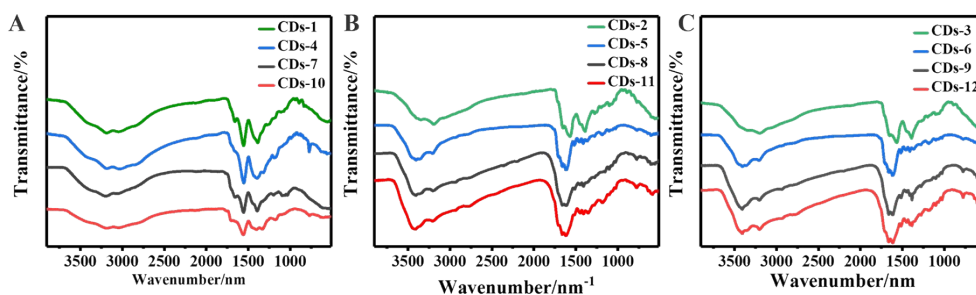


Figure S3. The FTIR spectrum of CDs synthesized with the same reaction solvent and different reaction temperatures and reaction times: (A) H₂O; (B) DMF; (C) DMF, HNO₃.

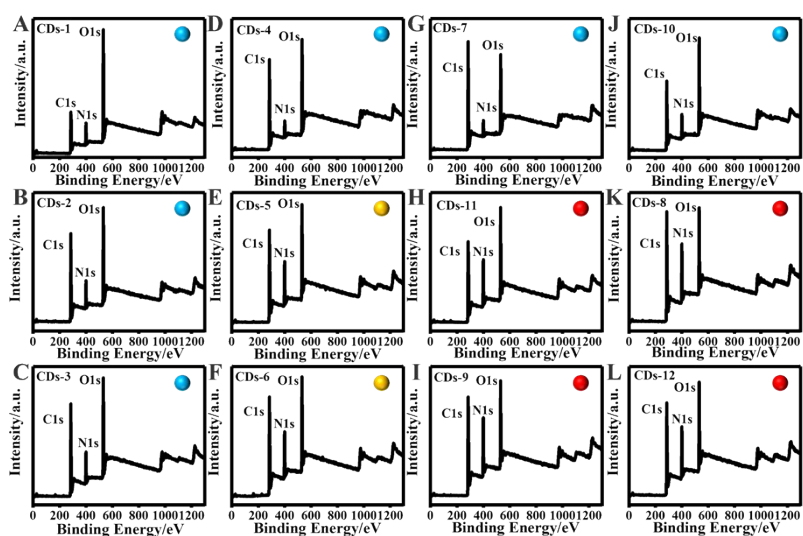


Figure S4. XPS spectra (full survey) of A) CDs-1, B) CDs-2, C) CDs-3, D) CDs-4, E) CDs-5, F) CDs-6, G) CDs-7, H) CDs-8, I) CDs-9, J) CDs-10, K) CDs-11 and L) CDs-12.

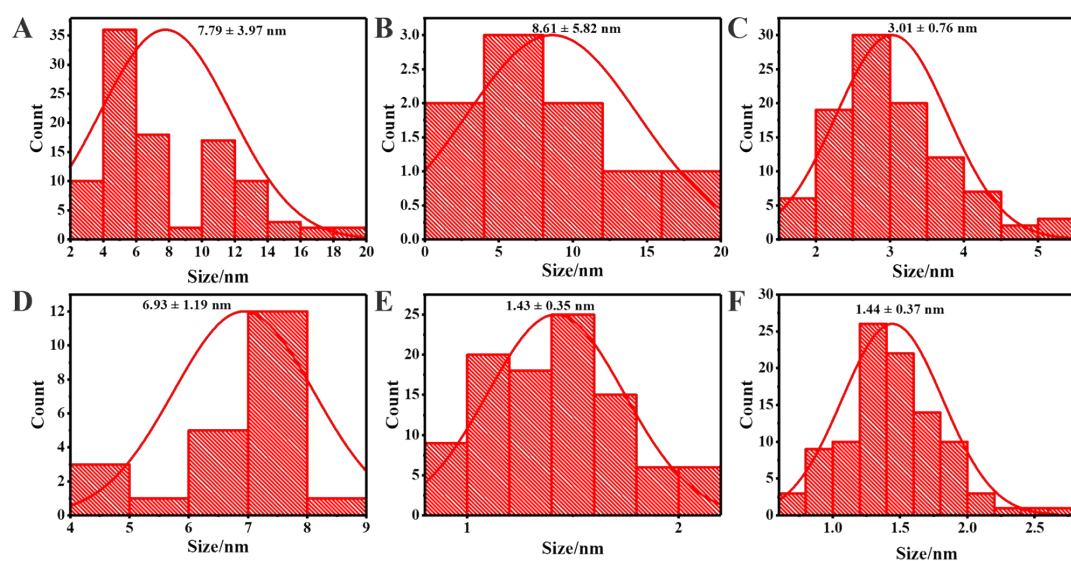


Figure S5. The size of (A) CDs-2, (B) CDs-10, (C) CDs-5, (D) CDs-6, (E) CDs-11 and (F) CDs-12.

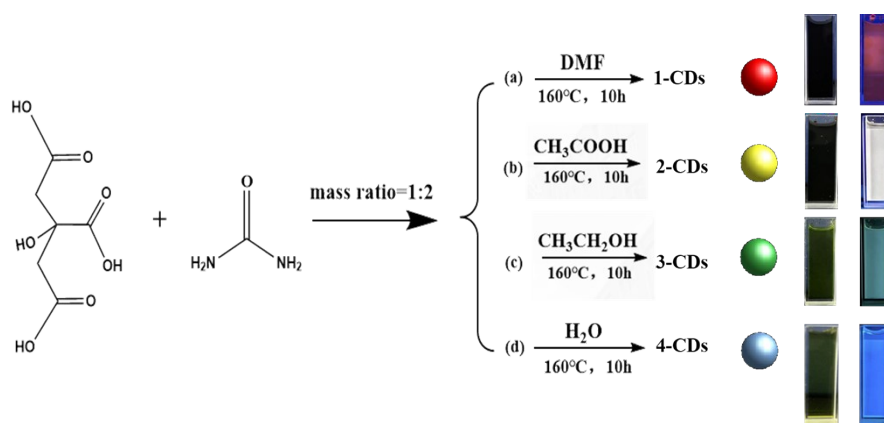


Figure S6. Multicolor fluorescent CPDs synthesized in different solvents.

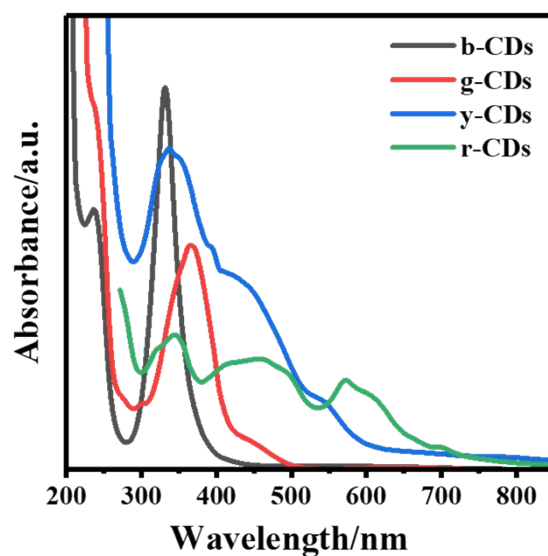


Figure S7. UV-vis spectra of Multicolor fluorescent CPDs.

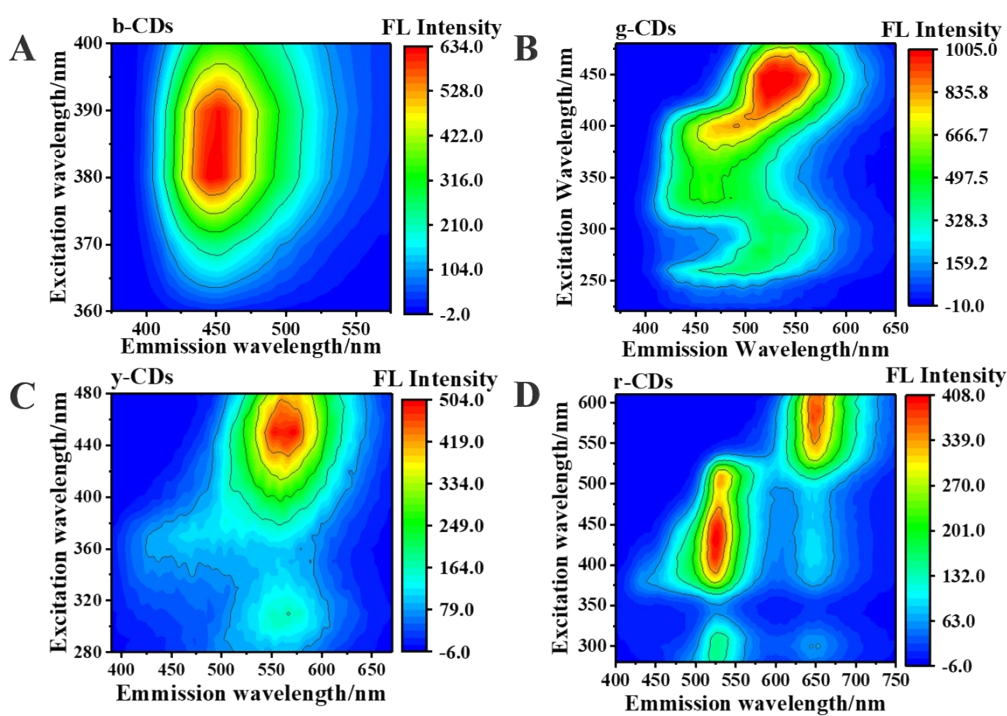


Figure S8. The luminescence emission spectra of Multicolor fluorescent CPDs: A) DMF; B) CH_3COOH ; C) $\text{CH}_3\text{CH}_2\text{OH}$; D) H_2O .

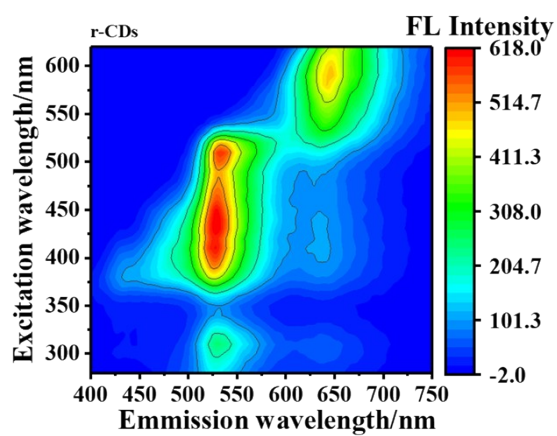


Figure S9. The luminescence emission spectra of r-CD (after two weeks).