Electronic Supplementary Material (ESI) for RSC Advances.

In-situ synthesis of stretchable and highly stable multi-color carbon-dots/polyurethane composite films for light-emitting devices

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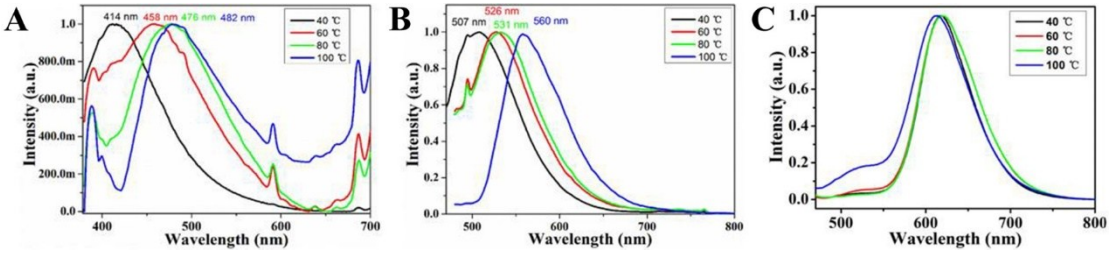

Figure S1. The PL spectra of CDs/PU composite films prepared from different carbon precursors. A, m-PD; B, o-PD and C, 1,2,4-TD.

Table S1. PL lifetimes and QYs of B-, G-, Y-, R-CDs/PU films.

Carbon Precursor	Tem(°C)	τ_1 (ns)	B_1 (%)	τ_2 (ns)	B_2 (%)	τ_{avg} (ns)	χ^2	QY (%)
m-PD	40	2.19	32.45	5.11	67.55	3.57	1.11	2.02
o-PD	60	1.97	41.12	3.94	58.88	2.79	0.84	2.02
	100	2.42	54.66	4.56	45.34	3.07	0.86	1.72
1，2，4-TD	60	0.87	33.52	2.64	66.48	1.58	1.55	1.09

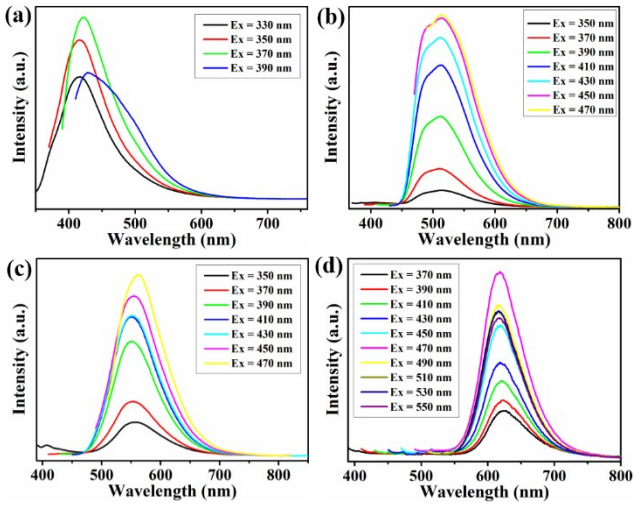

Figure S2. Excitation-independence spectra of multi-color CDs/PU films: a, B-CDs/PU films; b, G-CDs/PU films; c, Y-CDs/PU films and d, R-CDs/PU films.

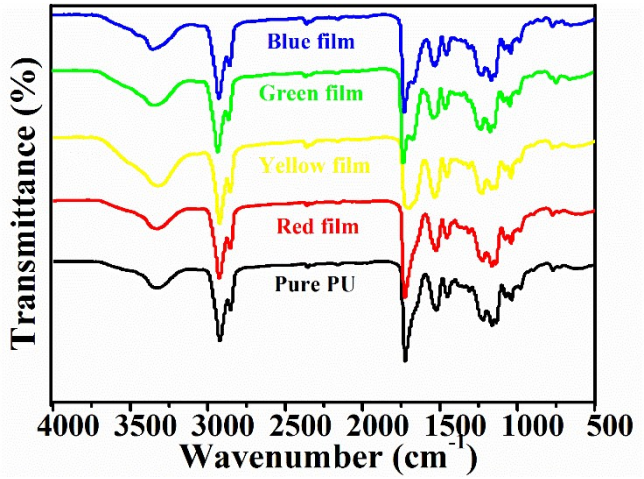

Figure S3. FTIR spectra of B-, G-, Y- and R-CDs/PU films and bare PU films.

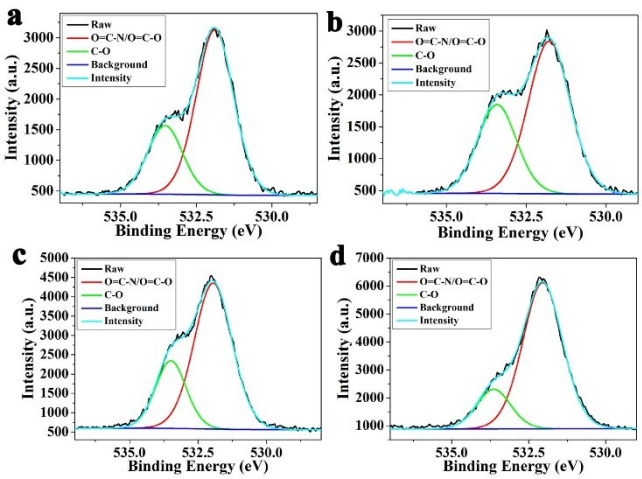

Figure S4. the high-resolution XPS O1s spectra of B-, G-, Y- and R-CDs/PU films.

Table S2. XPS analysis of the N1s and C1s spectra of B-, G-, Y-, R-CDs/PU films.

Sample	C-C/C=C	C-O	O=C-OH	N-C=O	C=N
B-PDs/PU	63.71%	29.20%	7.09%	57.90%	42.10%
G-PDs/PU	57.51%	31.85%	10.64%	40.59%	59.41%
Y-PDs/PU	59.24%	28.40%	12.36%	40.35%	59.65%
R-PDs/PU	58.36%	33.44%	8.20%	25.15%	74.85%

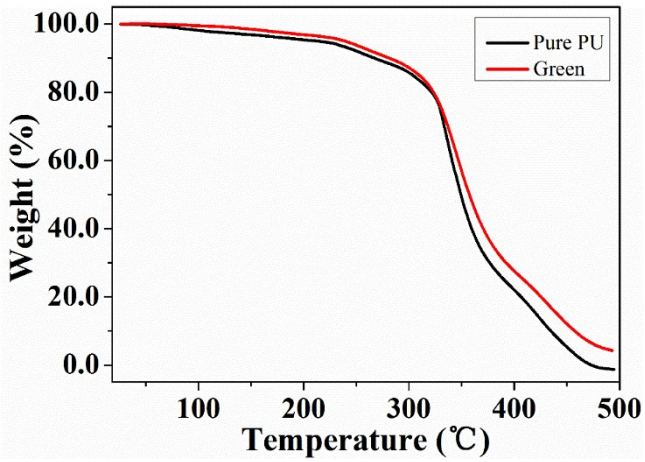

Figure S5. TGA curves of the G-CDs/PU films (red line) and of the bare PU film (back line).

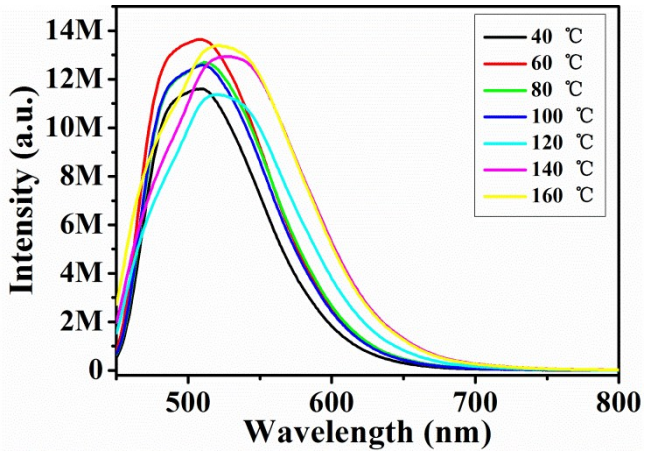

Figure S6. Relative PL intensity of G-PDs/PU film kept for 1 h under different temperatures as indicated

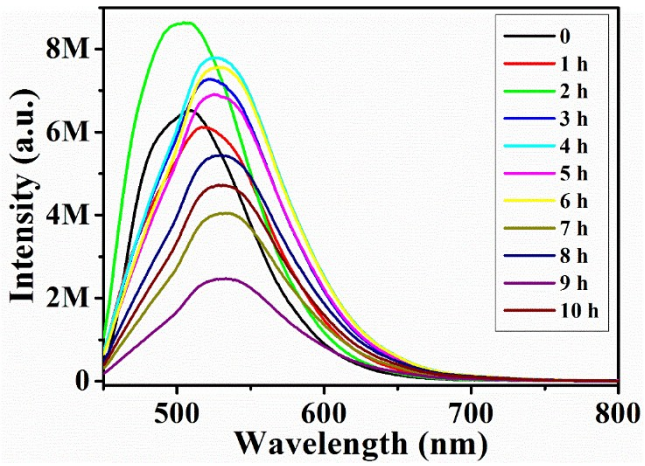

Figure S7. Relative PL intensity of G-PDs/PU film kept for up to 10 h at 100 °C.