

Supporting Information

Yellow fluorescence graphene quantum dots as phosphor for white tunable light emitting diodes

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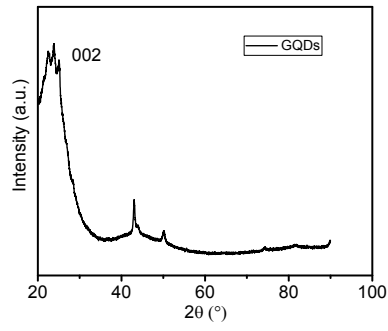


Figure S1. XRD spectrum of GQDs

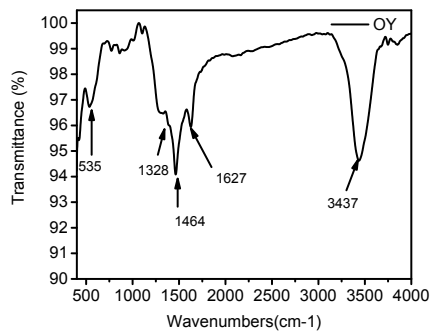


Figure S2. FT-IR spectra of the GQDs

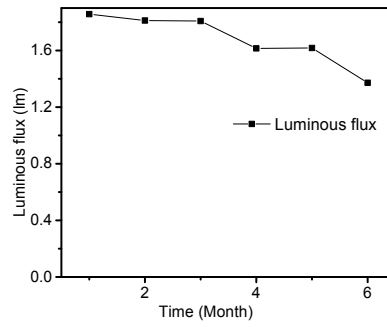


Figure S3. Luminous flux attenuation curve of devices stored in a drying cabinet

Table S1. Optimal performance record of white QDs LED fabricated with the quantum dissolved in different solvent during the entire experimental process.

Solvent	CRI	Luminous Efficacy (Lm/W)	CCT (K)
Hexamethylene	79.6	10.53	3870
Toluene	85.5	34.79	7191
Ethylene glycol	84	10.10	7278
Ethanol	86.7	7.86	4710

Table S2. Main optical parameters of the various QD and QD-modified phosphor-converted WLEDs.

Color converter	QY of QDs(%)	LE (lm W-1)	CCT (K)	Ra	Working currents/ Operating Voltage	Ref.
GQDs	31	34.79	7191	85.5	20 mA	This work
CNF@afGQDs	/	31.6	/	/	20 mA	[52]
GQD–agar composites	6.4	42.2	5532	72.0	20 mA	[53]
Cl-GQDs	6.2	8.6	4029	82.2	20 mA	[54]
AC-CDs	29	30.5		92	3.5 V	[55]
S,N-GQDs+YAG:C e3+	51.2	19.9	7342	74.6	350 mA	[56]
CDs+Ce-PiG	25.8	30.6	2561	92.6	20 mA	[57]
CD/PVA composite films	R 47 B 34 G 19	10.2	3919	91	3 V	[58]