Electronic Supporting Information

High Solid-State Photoluminescence Quantum Yield of Carbon-Dot-Derived Molecular Fluorophores for Light-Emitting Devices†

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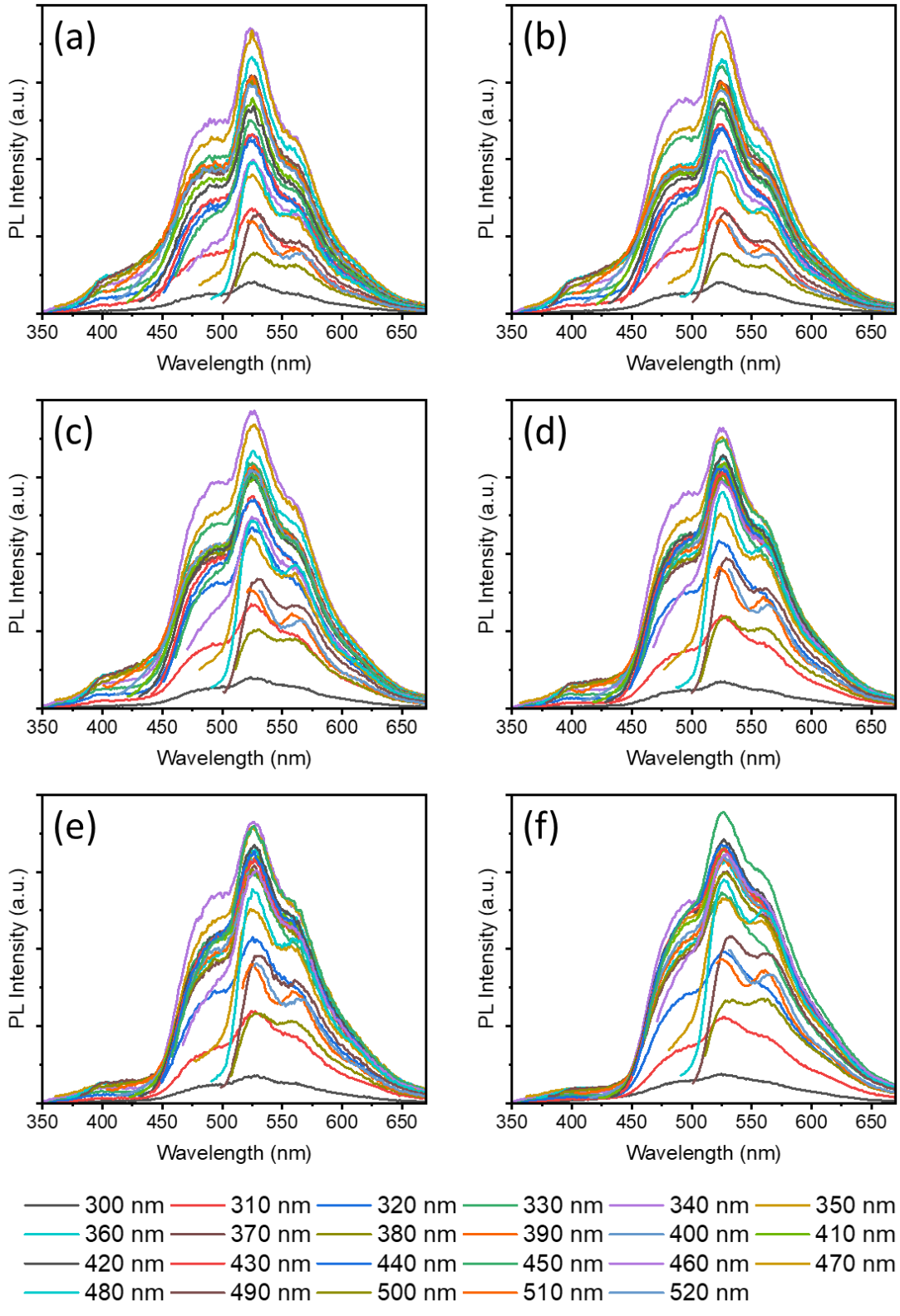

Figure S1: PL Emission spectra of BPD mixed in Epoxy at different concentrations (a) 0.10 wt. %, (b) 0.25 wt. %, (c) 0.50 wt. %, (d) 0.75 wt. %, (e) 1.00 wt. %, and (g) 2.00 wt. % recorded using different excitation wavelengths ranging from 300 nm to 520 nm.

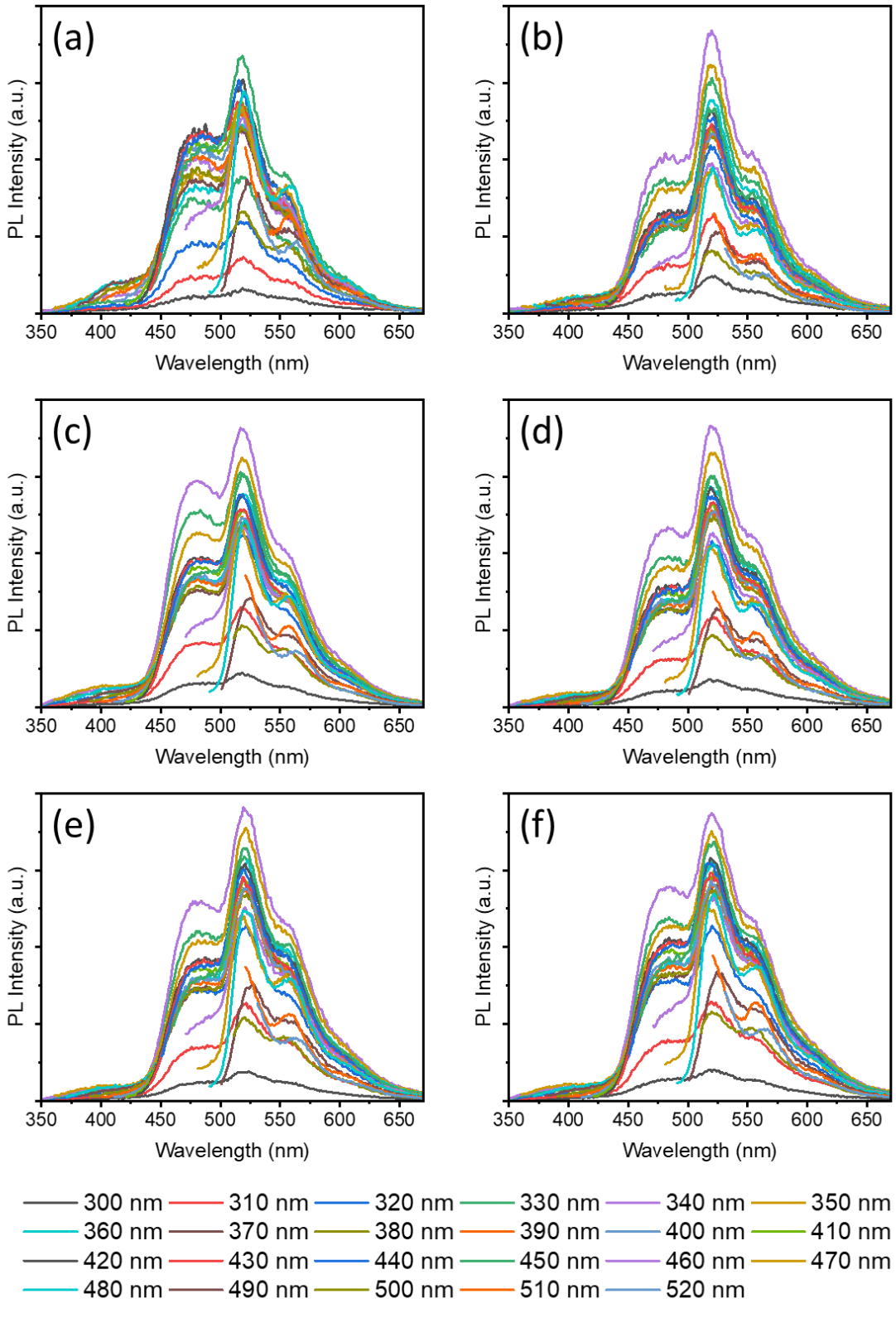

Figure S2: Emission spectra of BPD mixed in PMMA at different concentrations (a) 0.10 wt. %, (b) 0.25 wt. %, (c) 0.50 wt. %, (d) 0.75 wt. %, (e) 1.00 wt. %, and (g) 2.00 wt. % recorded using different excitation wavelengths ranging from 300 nm to 520 nm.

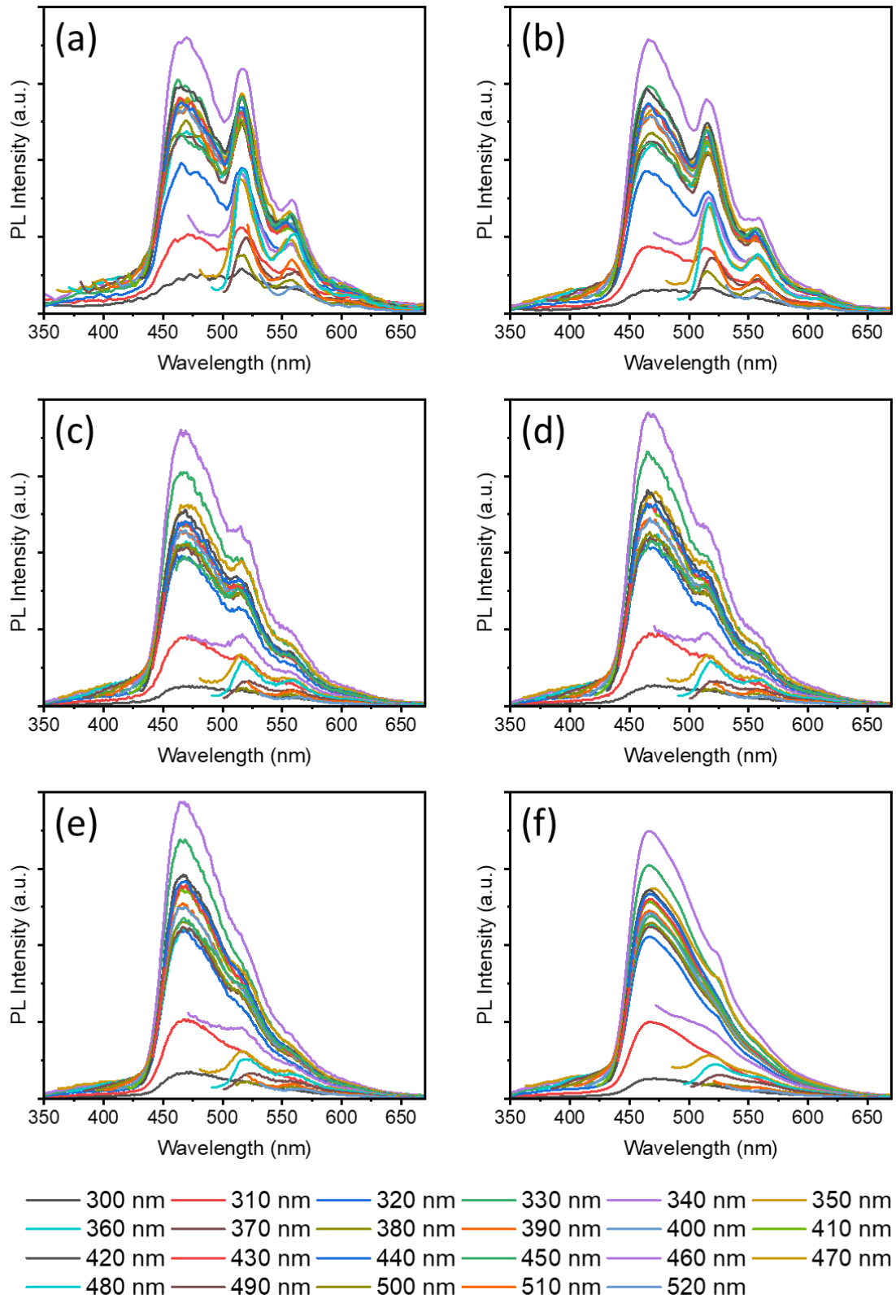

Figure S3: Emission spectra of BPD mixed in PS at different concentrations (a) 0.10 wt. %, (b) 0.25 wt. %, (c) 0.50 wt. %, (d) 0.75 wt. %, (e) 1.00 wt. %, and (g) 2.00 wt. % recorded using different excitation wavelengths ranging from 300 nm to 520 nm.

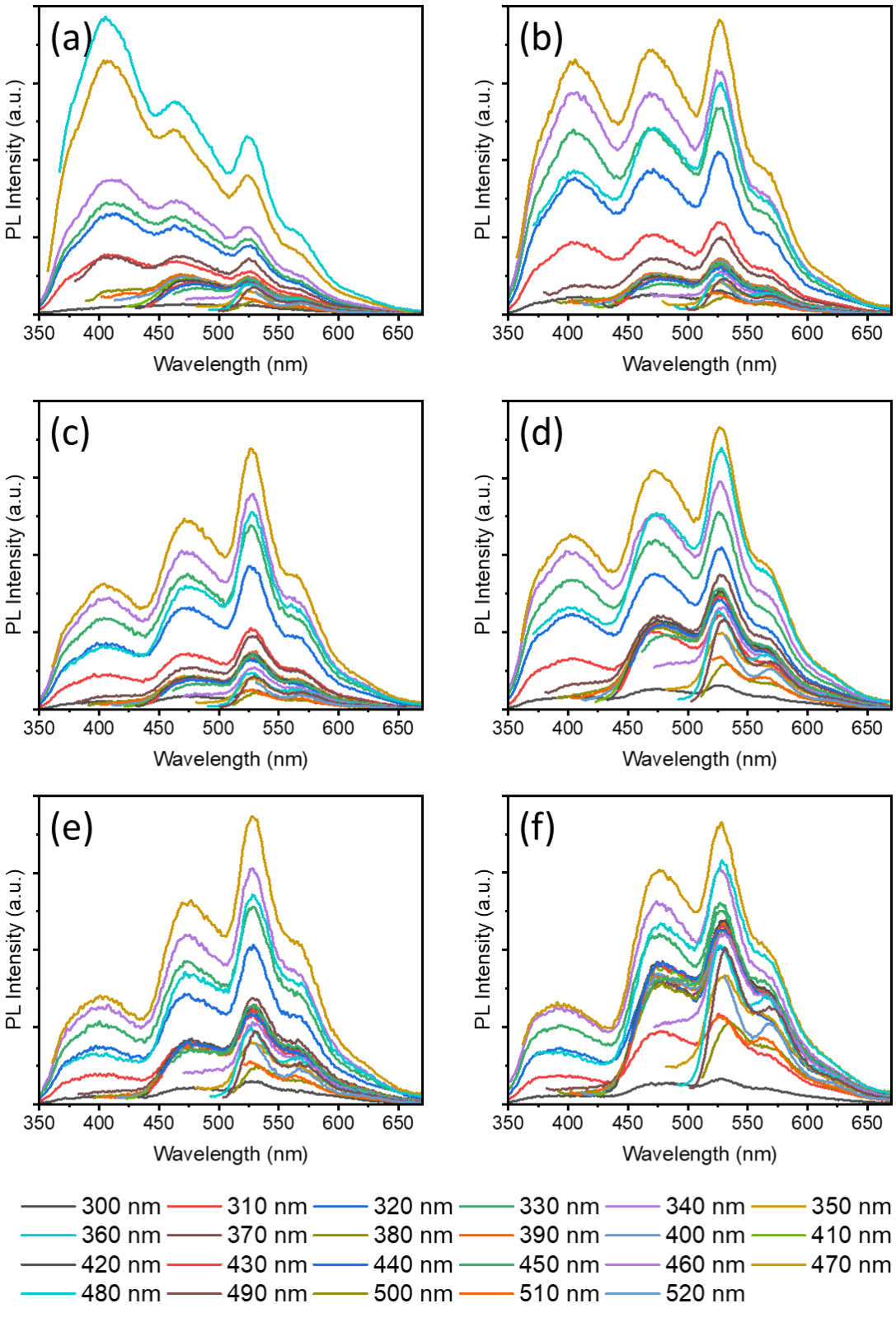

Figure S4: Emission spectra of BPD mixed in PVK at different concentrations (a) 0.10 wt. %, (b) 0.25 wt. %, (c) 0.50 wt. %, (d) 0.75 wt. %, (e) 1.00 wt. %, and (g) 2.00 wt. % recorded using different excitation wavelengths ranging from 300 nm to 520 nm.

Table S1: Performance parameters of a few single types of carbon-dots-based optically driven LEDs.

Ref	Chip	CIE	CRI	LE (lm/W)	Driving Voltage (V)	Solid-state PLQY (%)
1	UV	0.29, 0.30	83	0.086 (4993 cd/m^2)	4	< 10
2	400 nm	0.42, 0.38	91	-	-	10
3	450	0.34, 0.36	92.3	7.19	2.5	-
4	UV	0.31, 0.32	85	8.8	-	-
5	UV	0.31, 0.36	84	-	3.5	-
6	395 nm	0.35, 0.33	87	-	-	28
7	UV	0.32, 0.36	67.4	15.5	3	15.5
8	450 nm	0.33, 0.34	79	5.9	-	25
9	UV	0.33, 0.35	98.3	1.23	-	78.5
This work	445 nm	0.35, 0.37	71	3.8	10	75.9

Ref: Reference. **CIE**: International Commission on Illumination coordinates. **CRI:** Color Rendering Index. **LE:** luminous efficiency.

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