Supporting information

Highly Efficient Exciplex-Based OLEDs Incorporating a Novel Electron Donor

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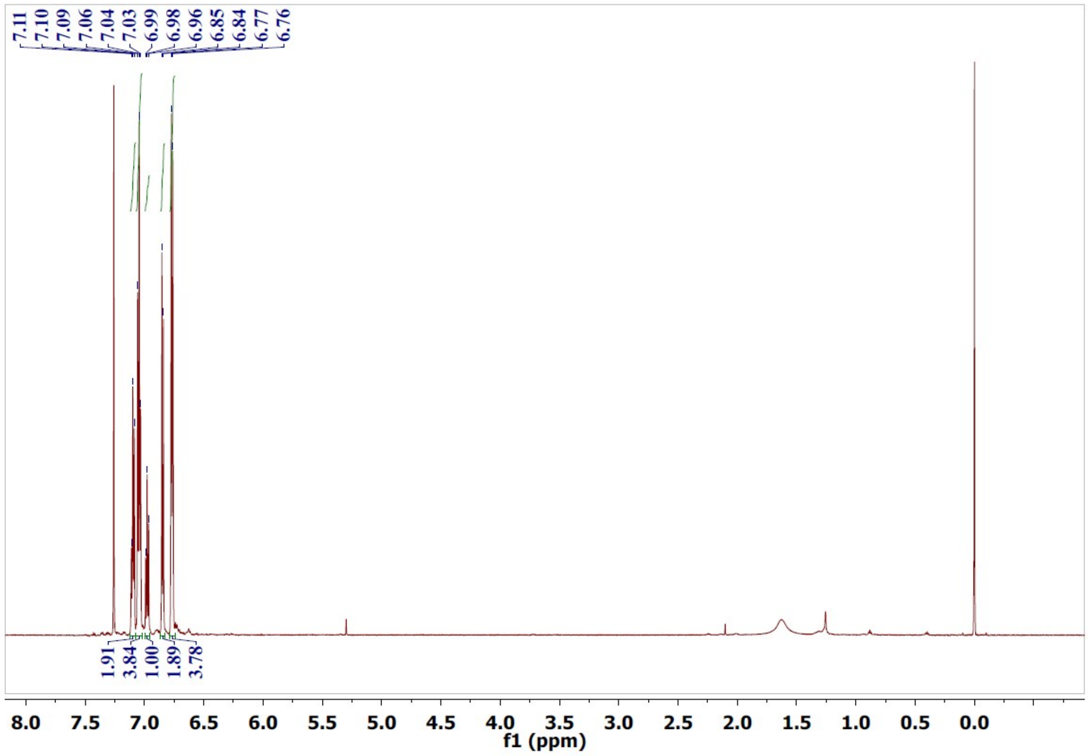

Fig. S1 ^{1}H NMR spectrum of DEX.

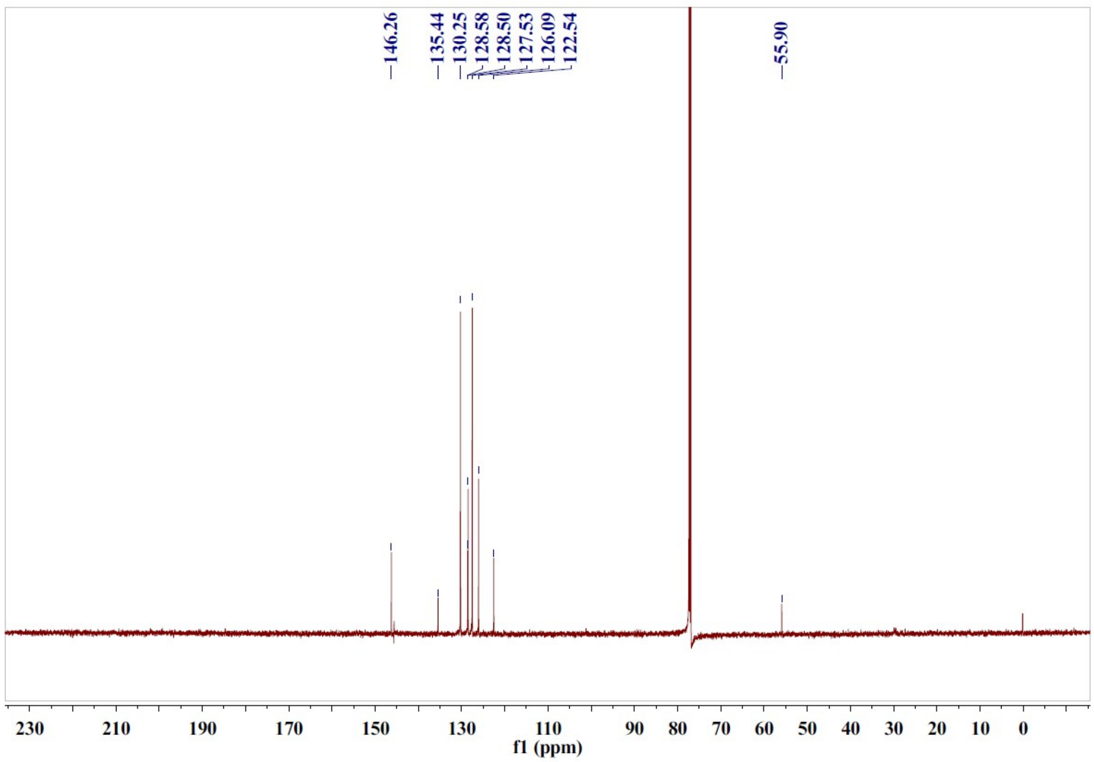

Fig. S2 ^{13}C NMR spectrum of DEX.

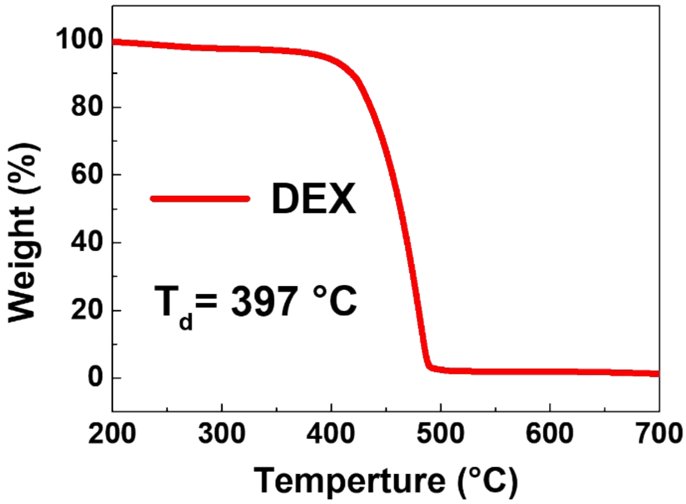

Fig. S3 TGA curve of DEX.

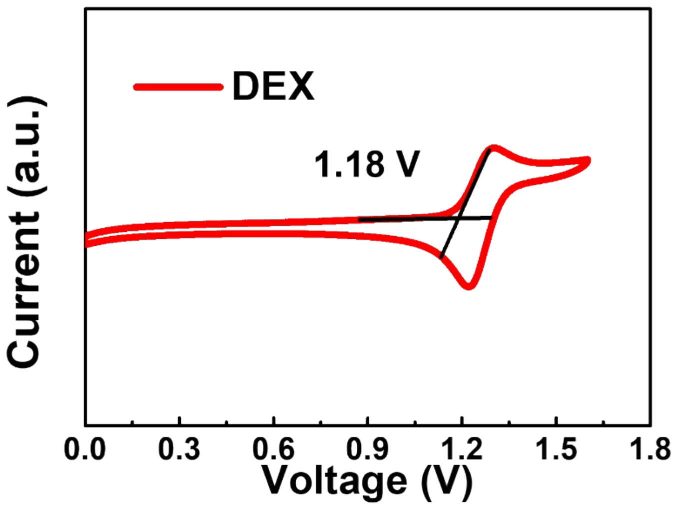

Figure S4 The CV curve of DEX.

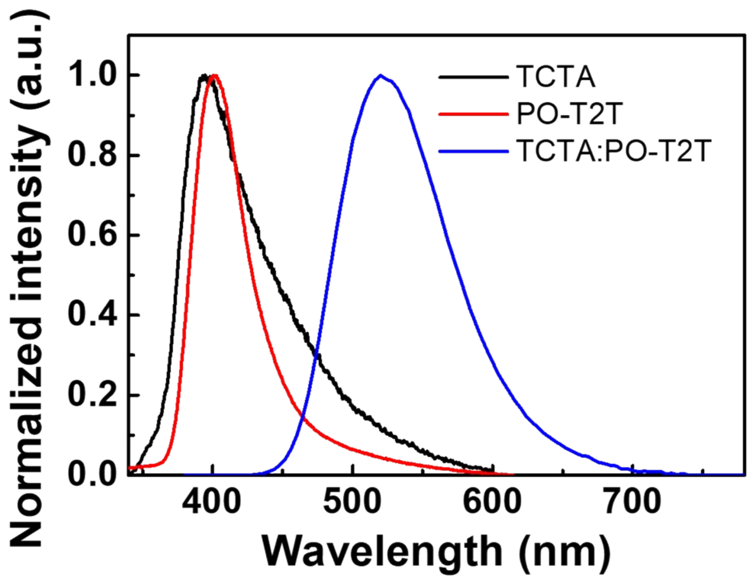

Fig. S5 The PL spectra of DEX, TCTA, and TCTA:PO-T2T films at 300 K.

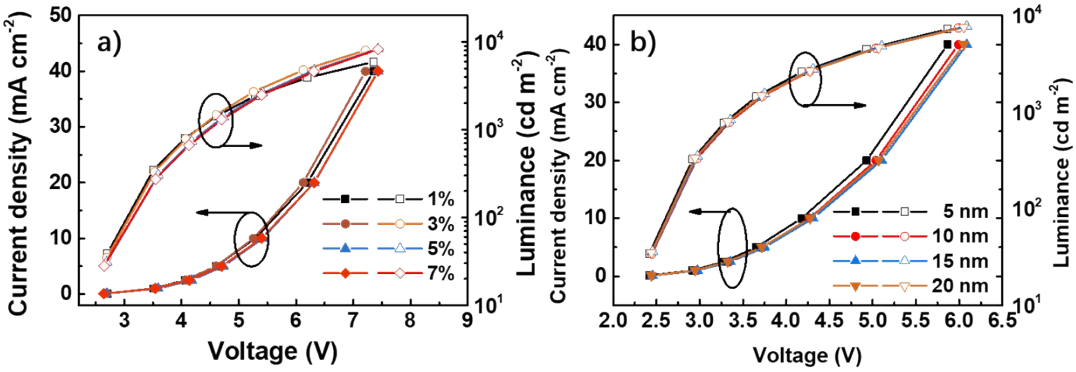

Fig. S6 a), b) Current density-voltage-luminance (*J-V-L)* curves of $R_{1\text{-}4}$ and $R_{5\text{-}8}$.

Table S1 Summary of EL performance of representative exciplex-based OLEDs without any luminescent dopant.

Reference	Voltage [V][a]	EQE_{max} [%]	CE_{max} [cd A^{-1}]	PE_{max} [lm W^{-1}]	CIE (x, y) or peak emission
This work	2.6	11.2	36.0	44.1	(0.29, 0.55)
[1]	2.5	11.0	28.9	-	509 nm
[2]	4.2	11.3	-	-	526 nm
[3]	2.6	7.7	22.5	23.6	(0.40, 0.55)
[4]	6.0	5.8	13.5	8.1	(0.40, 0.52)
[5]	4.0	9.1	27.5	25.6	(0.33, 0.52)
[6]	3.2	9.5	21.9	22.9	(0.18, 0.31)
	2.7	13.2	42.9	47.3	(0.37, 0.58)
[7]	4.0	8.2	29.5	29.1	(0.38, 0.57)

[a)]Operating voltage at brightness of 100 cd m^{-2}

Table S2 Summary of EL performance of representative red OLEDs employing $Ir(MDQ)_2(acac)$ as the dopant.

Type	Reference	Voltage [V][a]	EQE_{max} [%]	CE_{max} [cd A^{-1}]	PE_{max} [lm W^{-1}]	Roll-off [%][b]	CIE (x, y) or peak emission
Exciplex - host	This work	2.6	24.5	36.0	46.1	8	(0.62, 0.37)
	[8]	3.8	20.3	33.7	37.7	14	(0.62, 0.38)
	[9]	3.8	19.8	33.9	35.9	42	(0.59, 0.39)
	[10]	3.4	19.2	34.0	44.3	38	(0.60, 0.39)
	[11]	3.8	26.5	44.5	50.5	43	(0.62, 0.38)
Single-host	[12]	4.0	21.4	37.9	38.0	64	(0.61, 0.38)
	[13]	4.2	15.5	44.76	40.2	9	(0.56, 0.43)
	[14]	3.4	20.3	39.5	37.6	11	(0.60, 0.40)
	[15]	3.5	18.0	21.3	20.9	30	(0.64, 0.36)
	[16]	4.0	17.4	25.8	24.0	25	(0.61, 0.38)
	[17]	3.7	19.3	24.7	22.5	5	(0.63, 0.36)
	[18]	4.8	15.9	21.5	29.9	16	(0.62, 0.38)

[a)]Operating voltage at brightness of 100 cd m^{-2}; [b)]The efficiency roll-off from the maximum CE to the value at brightness of 1000 cd m^{-2}

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