

Table SI The summary of OLED performances from this work and literature.

MR-TADF emitter	EL peak (nm)	FWHM (nm)	k_{RISC} (s^{-1})	EQE (%)	Reference
BFCz-B-Cz	496	43	3.0×10^5	26.0	This work
BFCz-B-O	456	45	1.6×10^5	11.0	
tCzBN	493	41	0.8×10^5	21.2	
DtBuCzB	488	29	--	21.6	<i>Adv. Optical Mater.</i> 2020, 1902142
DtBuPhCzB	504	34	--	23.4	
CzBNO	454	36	3.47×10^4	13.6	<i>Adv. Optical Mater.</i> 2022, 10, 2102092
DMAcBNO	472	41	1.40×10^4	20.4	
DPAcBNO	468	37	1.75×10^4	23.0	
BTZ-BNCz	496	35	1.6×10^5	27.0	<i>Adv. Optical Mater.</i> 2023, 2301084
TPXZBN	506	37	0.48×10^5	21.3	<i>J. Mater. Chem. C</i> , 2022,10, 768-773
DPXZCZBN	505	36	1.11×10^5	19.2	
TCz-BN	474	30.59	-	18.88	<i>Angew. Chem. Int. Ed.</i> , 2019, 58, 16912-16917.
2F-BN	499	40	2.2×10^4	22	
3F-BN	493	38.5	3.9×10^4	22.7	
4F-BN	504	31.6	4.4×10^4	20.9	
AZA-BN	522	28	7.53×10^3	28.2	<i>Angew. Chem. Int. Ed.</i> , 2020, 59, 17499-17503.
CzBO	448	30	0.9×10^4	13.4	<i>Angew. Chem. Int. Ed.</i> 2022, 61, e202205684
CzBS	473	31	2.2×10^5	23.1	
BN-DMAC	502	48	--	21.1	<i>Adv. Optical Mater.</i> 2021, 9, 2100825
BN-DPAC	504	48	--	28.2	
Cz2DABNA-NP-M/TB	477	27	7.3×10^4	21.8	<i>Angew. Chem. Int. Ed.</i> , 2021, 60, 2882-2886.
DtCzB-TPTRZ	520	41	1.08×10^4	30.6	<i>CCS Chem.</i> , 2022, 4, 2065-2079.

tDPAC-BN	460	28	1.16×10^4	21.6	<i>Chem. Eng. J.</i> 2022, 431, 133221.
tDMAC-BN	472	34	4.80×10^4	22.3	
BN1	506	36	1.9×10^5	24.3	<i>Adv. Funct.</i> <i>Mater.</i> 2021, 31, 2102017
BN2	545	46	1.5×10^5	24.5	
BN3	568	43	1.4×10^5	24.7	
DPACzBN1	475	34	1.2×10^4	23.6	<i>ACS Appl. Mater.</i> <i>Interfaces</i> 2021, 13, 59035
DPACzBN2	469	28	2.9×10^4	24.0	
DPACzBN3	472	24	2.1×10^4	27.7	
TW-BN	488	26	7.56×10^3	27.8	<i>Small</i> , 2022, 18, 2106462.
TPh-BN	492	28	1.43×10^4	28.9	
pCz-BN	496	30	6.42×10^3	27.2	
mCz-BN	496	31	1.64×10^4	25.9	