



Supporting Information

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Promoted Hole Transport Capability by Improving Lateral Current Spreading for High-efficiency Quantum Dot Light-Emitting Diodes

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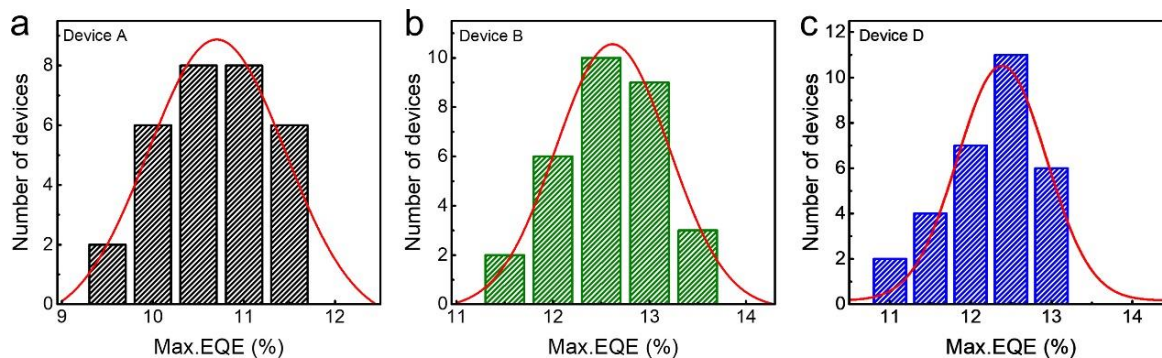
SI-1. Histogram of peak EQEs measured from 30 devices of Device A, B and D.

Figure S1. EQE reproducibility of (a) Device A, (b) Device B and (c) Device D. The average peak EQE of Device A, B and D are 10.9%, 12.8% and 12.4%, respectively, and the relative standard deviations of Device A, B and D are 5.08%, 4.28% and 3.49%, respectively, showing good performance reproducibility.

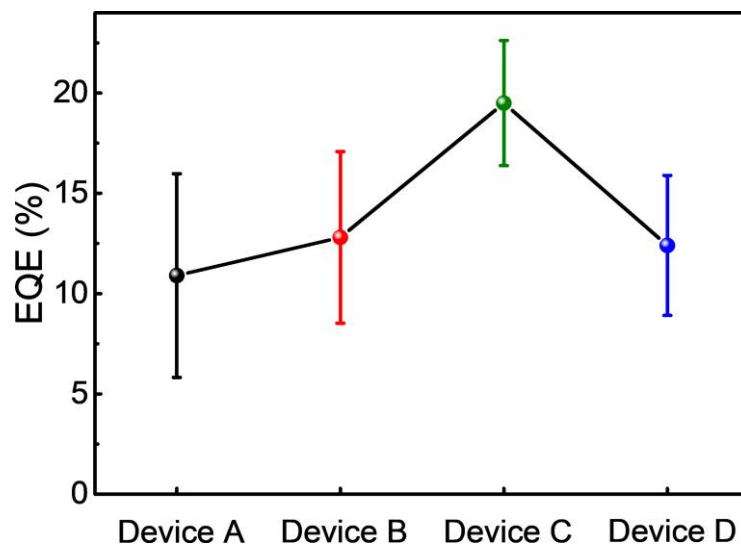
SI-2. Average EQE and error range curve of devices A-D.

Figure S2. The average EQE and error range curve of devices A-D.

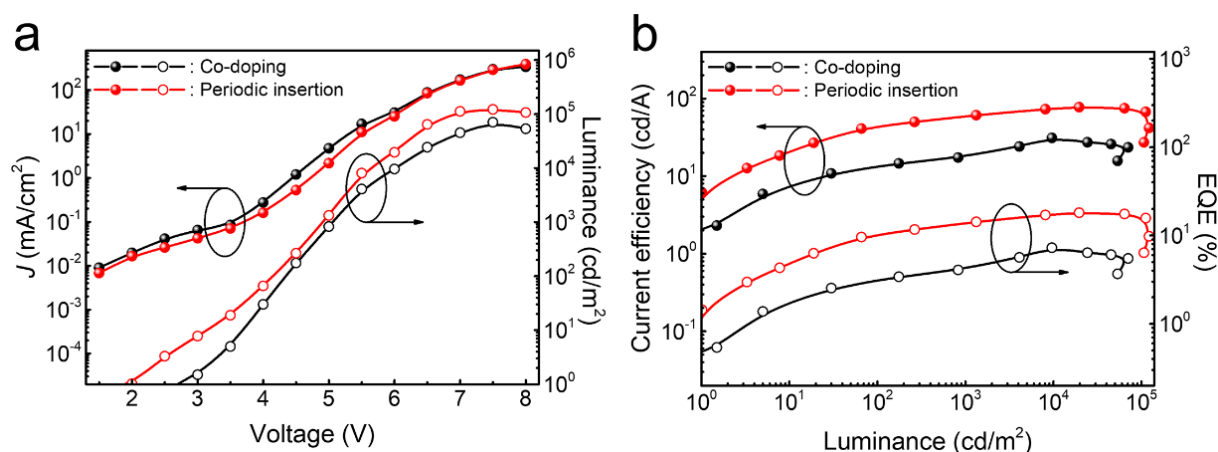
SI-3. *J-V-L* and *CE-L-EQE* characteristics of devices.

Figure S3. a) *J-V-L*, b) *CE-L-EQE* curves of the devices with HTLs structure of CBP:3.8 vol.% MoO₃ and CBP (16.7 nm)/MoO₃ (1 nm)/CBP (16.7 nm)/MoO₃ (1 nm)/CBP (16.7 nm).

SI-4. Energy band diagrams for devices at the equilibrium state.

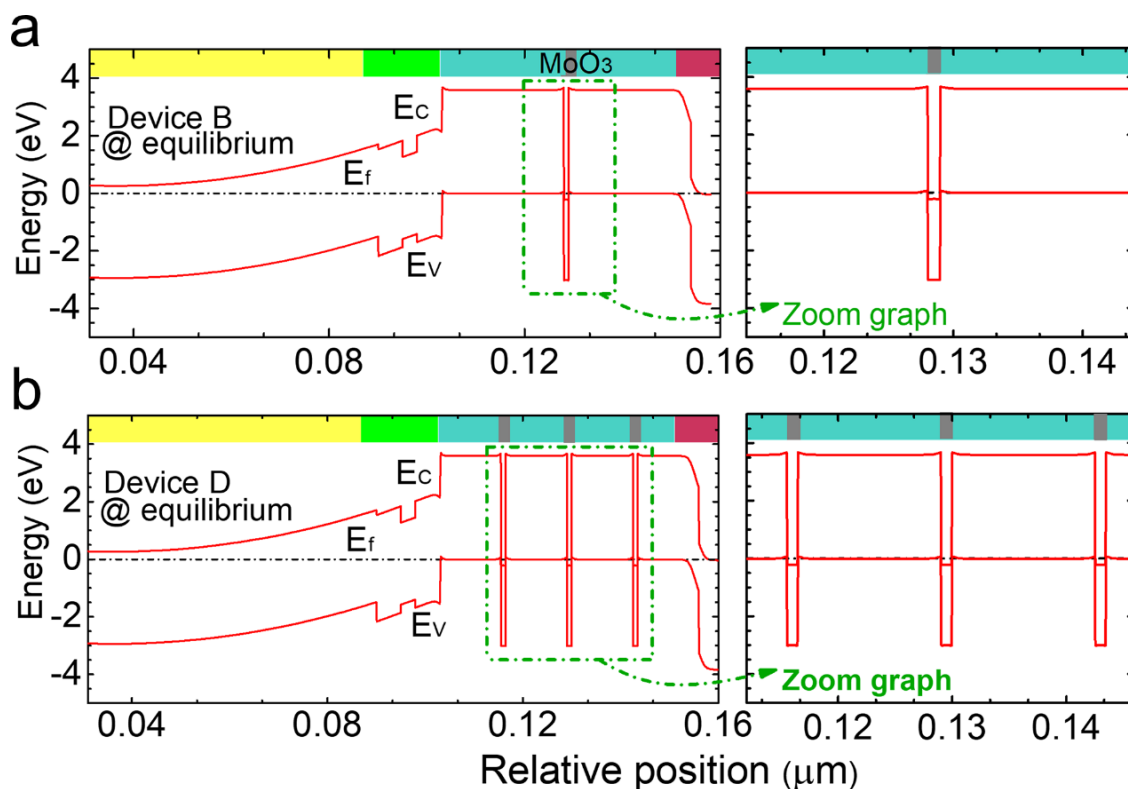


Figure S4. Energy band diagrams for a) Device B and b) Device D at the equilibrium state, respectively. E_c , E_v and E_f denote the conduction band, the valence band and quasi-Fermi level, respectively.

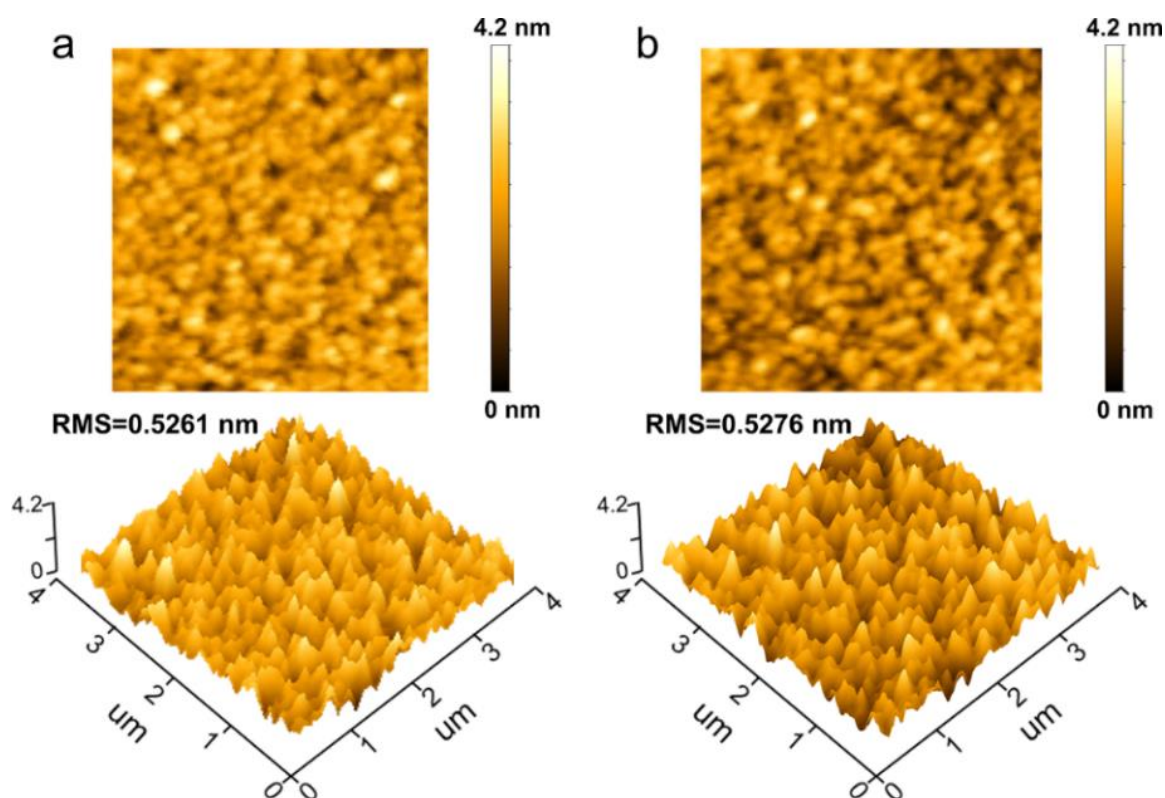
SI-5. AFM images of CBP films with/without periodic MoO₃ thin layer.

Figure S5. Surface morphology of a) the CBP film and b) CBP film with two periodic MoO₃ thin layer.

Table S1. Carrier mobility and carrier concentration parameters used in the simulations.

Electrical parameter	ITO (Ref)	ZnO (Ref)	CBP (Ref)	MoO ₃ (Ref)	HTL (Ref)
Hole mobility [cm ² V ⁻¹ s ⁻¹]	-	-	3.8×10 ⁻⁴ [4]	1.6×10 ² [5]	-
Electron mobility [cm ² V ⁻¹ s ⁻¹]	10 ² [1]	1.8×10 ⁻³ [2]	-	-	3.3×10 ⁻² [6]
Carrier concentration [cm ⁻³]	10 ²⁰ [1]	10 ¹⁸ [3]	10 ¹ [4]	10 ¹⁹ [5]	10 ¹⁹ [7]

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