

Supporting information

High-Performance, Color-Tunable Fiber Shaped Organic Light-Emitting Diodes

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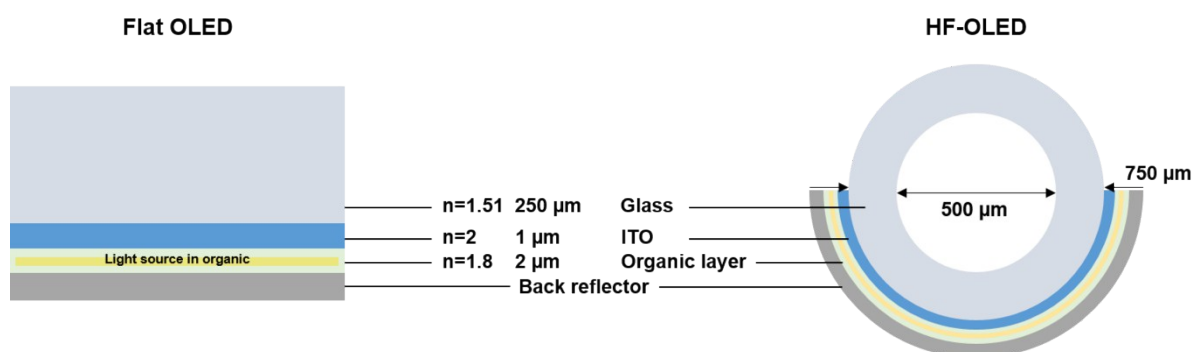


Figure S1. Input parameters such as the refractive index and thickness of the electrode and organic emissive layers used in the optical simulation of the OLED.

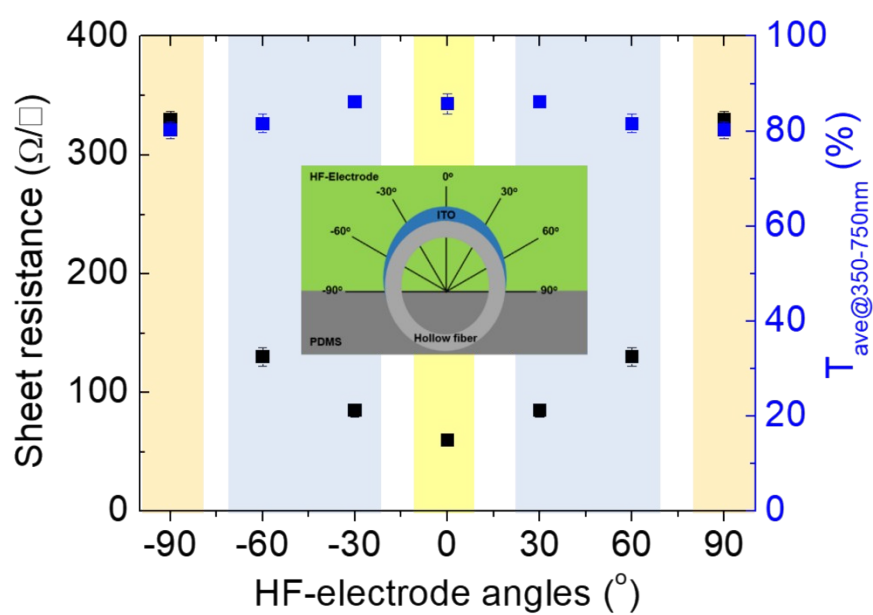


Figure S2. Sheet resistance and average transmittance (350-750 nm) of the HF-electrode at different angles.

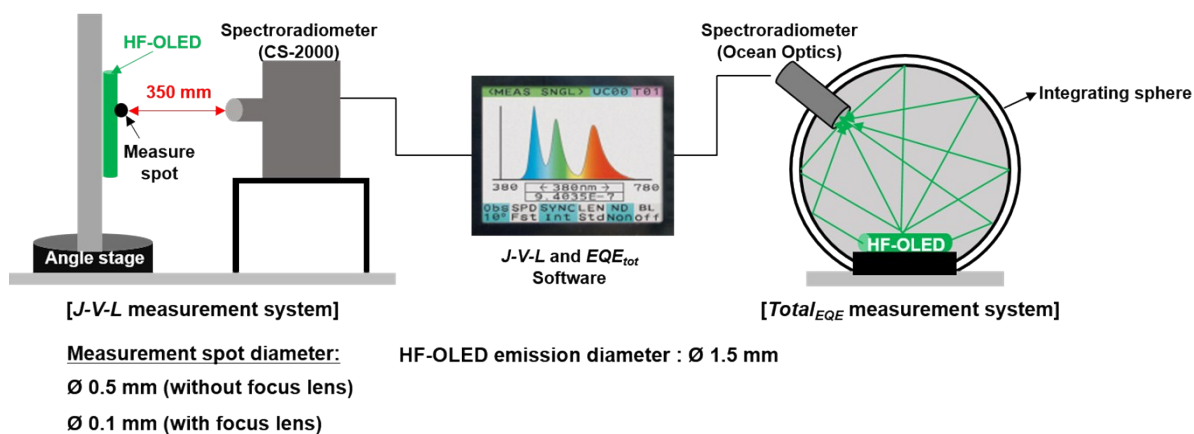


Figure S3. Schematic illustration of the J - V - L and EQE_{tot} measurement setup using CS-2000 spectroradiometer with an integrating sphere.

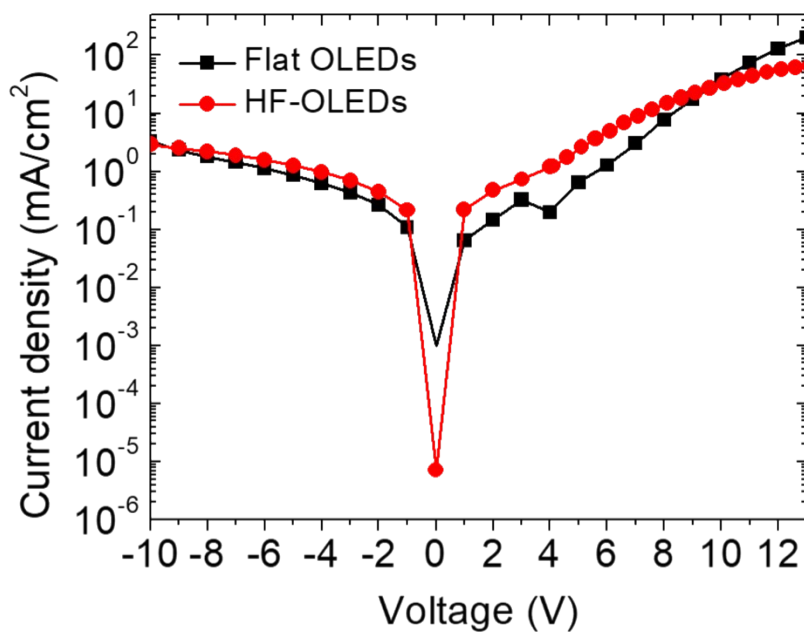


Figure S4. Dark J - V characteristics of the HF-OLED compared with the planar OLED.

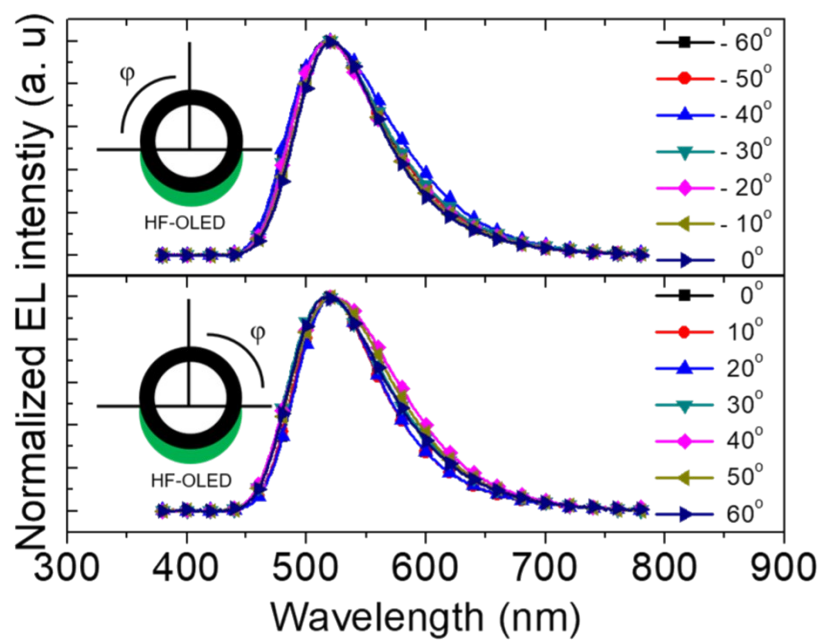


Figure S5. Normalized emission spectra of the HF OLED at different zenith angles.

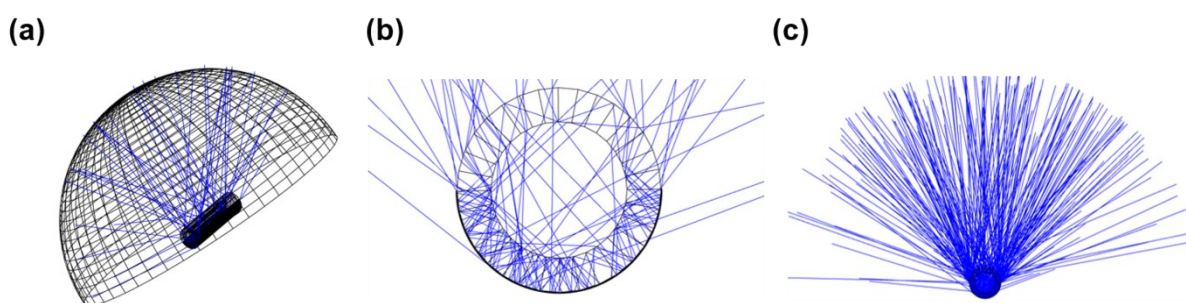


Figure S6. Light out-coupling pathway of the HF-OLED simulation structure.

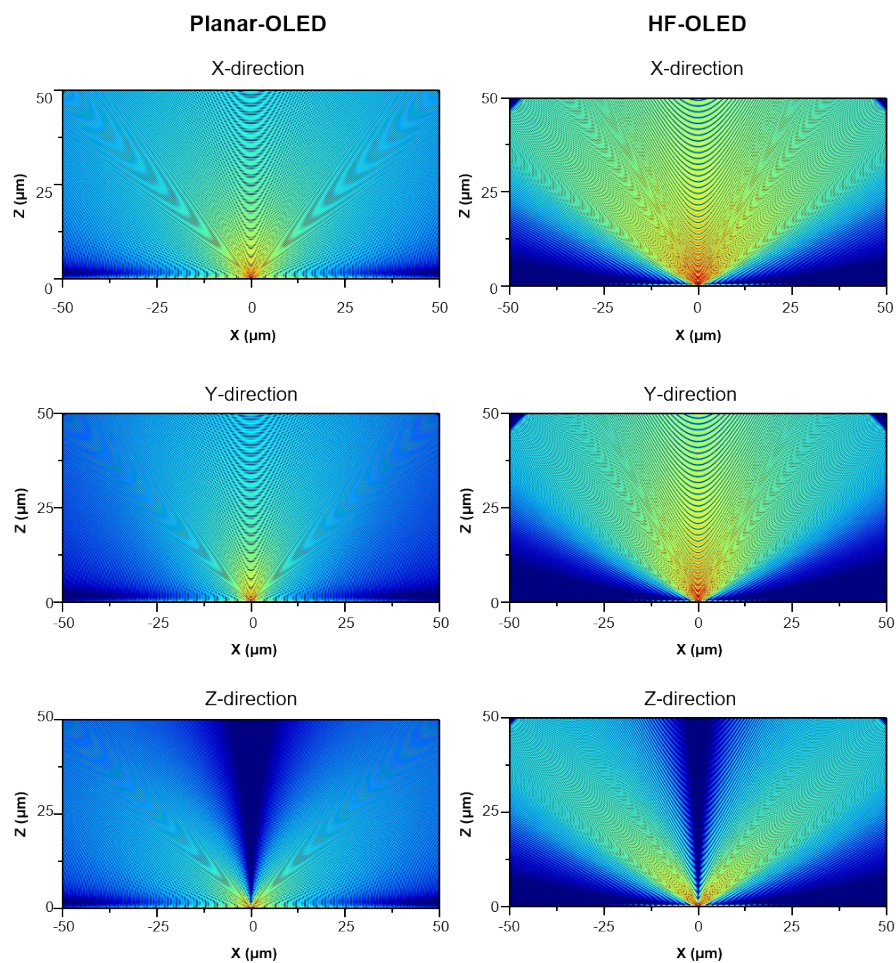


Figure S7. Electric field distributions of planar-OLED and HF-OLED based on 3-axes oscillating dipole sources. All scales are the same.

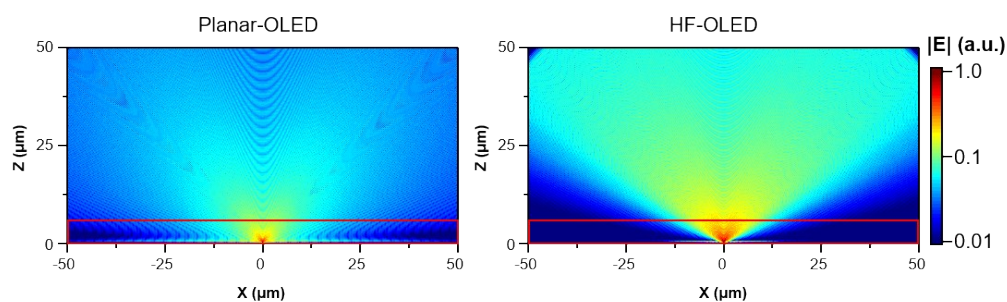


Figure S8. Averaged electric field distributions with the electric field distributions based on 3-axes dipoles of planar-OLED and HF-OLED. Red boxes indicate that the magnified regions shown in Fig. 4(f).

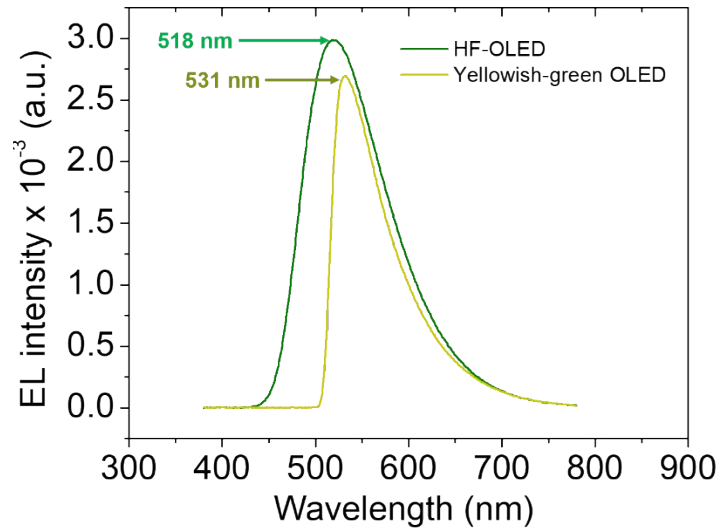


Figure S9. EL emission spectra of HF-OLED and yellowish-green OLED (after solution-injection).

Table S1. Summarization of the performance of fiber based OLEDs (F-OLED).

Ref.	Device architecture	Max. LE (cd/A)	Max. EQE (%)
Planar-OLED (current work)	ITO/2-TNATA/NPB/Alq ₃ /LiF/Al	~ 5.0	~ 1.7
HF-OLED (current work)	ITO/2-TNATA/NPB/Alq ₃ /LiF/Al	~ 11.0	~ 3.7
Planar-OLED ¹	ITO/PEDOT:PSS/NPB/Alq ₃ /LiF/Al	~ 4.2	N/A
Planar-OLED ²	ITO/HITL/NPB/Alq ₃ /LiF/Al	~8.0	~ 2.4
F-OLED ³	Fiber/ZnO/EML/CNT	~ 0.83	~ 0.35
F-OLED ⁴	Fiber/PEDOT:PSS/EML/LiF/Al	~ 2.94	N/A
F-OLED ⁵	Fiber/PEDOT:PSS/ZnO/PEI/EML/MoO ₃ /A	~ 11.6	N/A
1			
F-OLED ⁶	Fiber/Al/Ni/CuPc/NPD/Alq ₃ /LiF/Al	N/A	~ 0.15
F-OLED ⁷	Fiber/CNT/EML/CNT	~ 0.51	N/A

*N/A: Not available

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