**Fig. S1.** The differential scanning calorimetry (DSC) curves of PyDFDPA, PyDFPNA, and PyDFCz.

**Fig. S2.** Current density-voltage-luminance curves of the green, orange (a, b), and blue (c, d) OLEDs.
Fig. S3. EL efficiency versus luminance curves of the green, orange (a), and blue (b) OLEDs.

Fig. S4. Device operating lifetime of the blue, green, and orange phosphorescent devices based on PyDFPPA, PyDFDPA, PyDFPNa, and PyDFCz host at an initial luminance of 3000 cd m$^{-2}$ under constant current mode.