Title:	Aggregation-Induced Enhanced Emission-Active Zinc(II) β-Diketiminate Complexes Enabling High-Performance Solution-Processable OLEDs
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Abstract:	Earth-abundant and cheaper zinc-based organometallic molecules as luminophores are drawing significant research attention for solid-state lighting devices. In this paper, we report two air-stable zinc complexes, where the zinc is coordinated to two sterically encumbered β-diketiminate ligands in a tetrahedral geometry. In such a geometry, eight phenyl/aryl rings from the ligand backbones are oriented in a propeller shape, augmenting the restricted rotation of the putative rings. Such an architecture harnesses aggregation-induced emission behavior with an excellent solid-state emission property. The rigidity of these molecules reduces the possibility of non-radiative transitions and makes them excellent fluorescence emitters. Both molecules exhibit electroluminescence (EL) in the yellowish-green region of the visible spectrum. We have utilized these molecules as emitters to fabricate multilayered organic light-emitting diode (OLED) devices. The emitter Zn-I in host m-MTDATA exhibits EL with a maximum external quantum efficiency of 4.4%. Among the handful of zinc-based OLEDs, the performance of this emitter is very commendable with power and current efficacies of 15.2 lm W–1 and 12.1 cd A–1, respectively, along with a brightness of 2426 cd m–2.
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