

EFFECT OF FLUORINE ON ELECTROACTIVE MATERIALS WITH AGGREGATION INDUCED ENHANCED EMISSION PROPERTIES

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Triphenylethylene (TPE) based derivatives are used to achieve aggregation induced enhanced emission (AIEE) in order to solve the problem of aggregation caused quenching (ACQ) [1]. Materials with TPE units can provide high emission efficiencies in the aggregated state that can be effectively used to fabricate efficient non-doped OLEDs [2]. The synthesized compounds were based on a donor acceptor rotor (D-A-R) molecular structure where TPE unit was used as rotor. D-A-R materials demonstrate AIEE and bipolar properties [3]. Photoluminescence decay was measured to study the fluorescence time and prompt fluorescence was observed without the delayed fluorescence, leading to the AIEE properties measurement by the mixture of THF/H₂O solution, as the H₂O concentration got increased a drastic elevation in the intensity of materials was observed proving the AIEE behaviour (Fig. 1). The best non-doped device fabricated based on the synthesized D-A-R material showed turn-on voltage of 4.2v, maximum brightness of 5700 cd/m² and power efficiency of 3.2 lm/W.

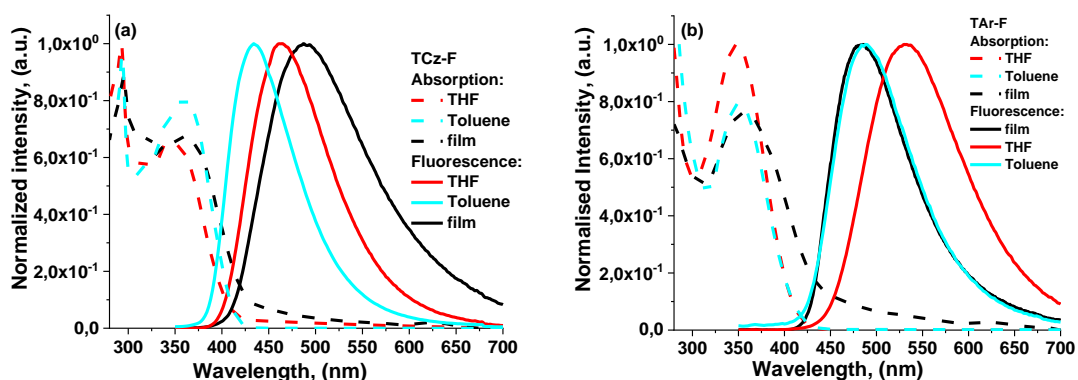


Fig. 1. Absorption and Emission spectra of compounds in different solvents and neat film (a) TCz-F, (b) TAR-F.

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