

## ELECTRONIC SUPPLEMENTARY INFORMATION

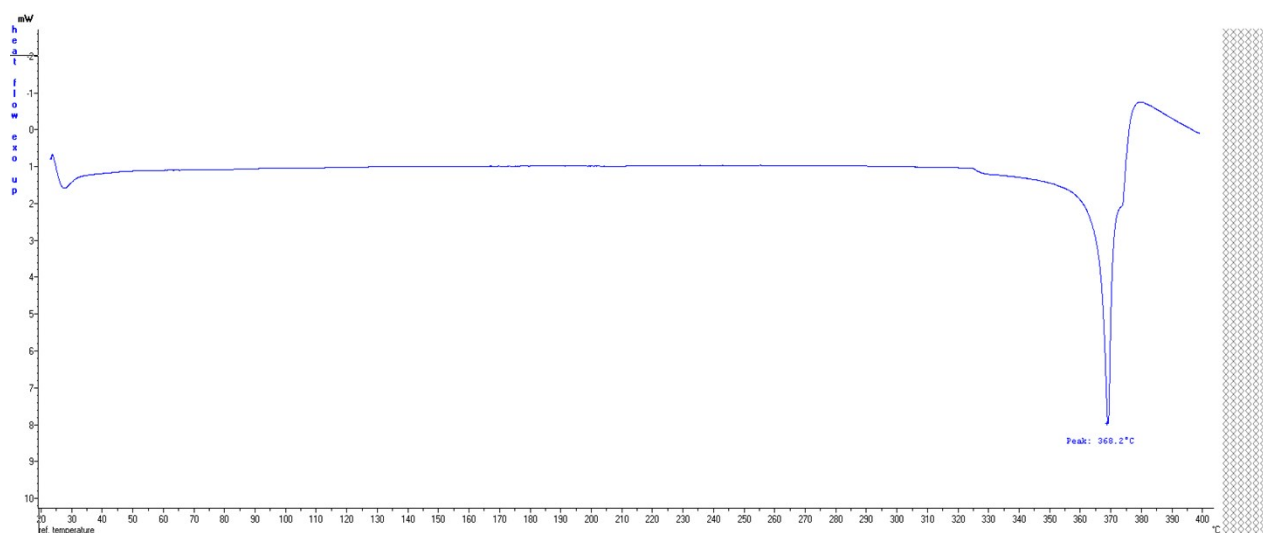
for

# Anthracene-based molecular emitters for non-doped deep-blue organic light emitting transistors

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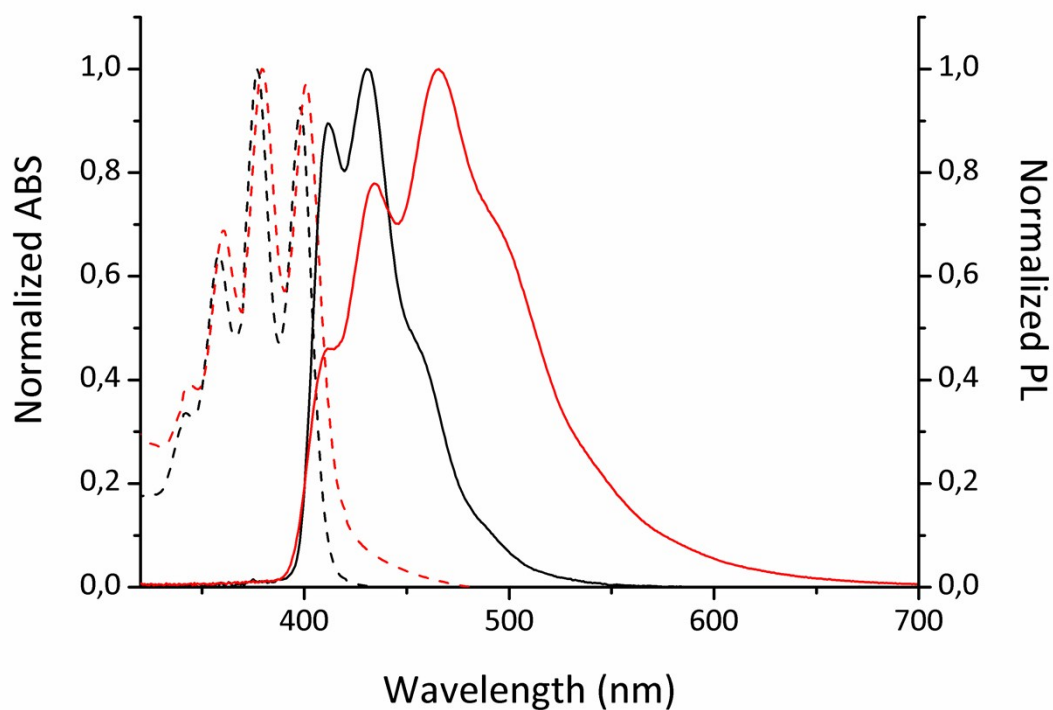
- 1) Differential Scanning Calorimetry (DSC)
- 2) Spectroscopic characterization of BDNA and BD3 in solution and thin film
- 3) Morphology of thin films
- 4) Device characteristics for BD3 and BDNA

### 1. Differential Scanning Calorimetry

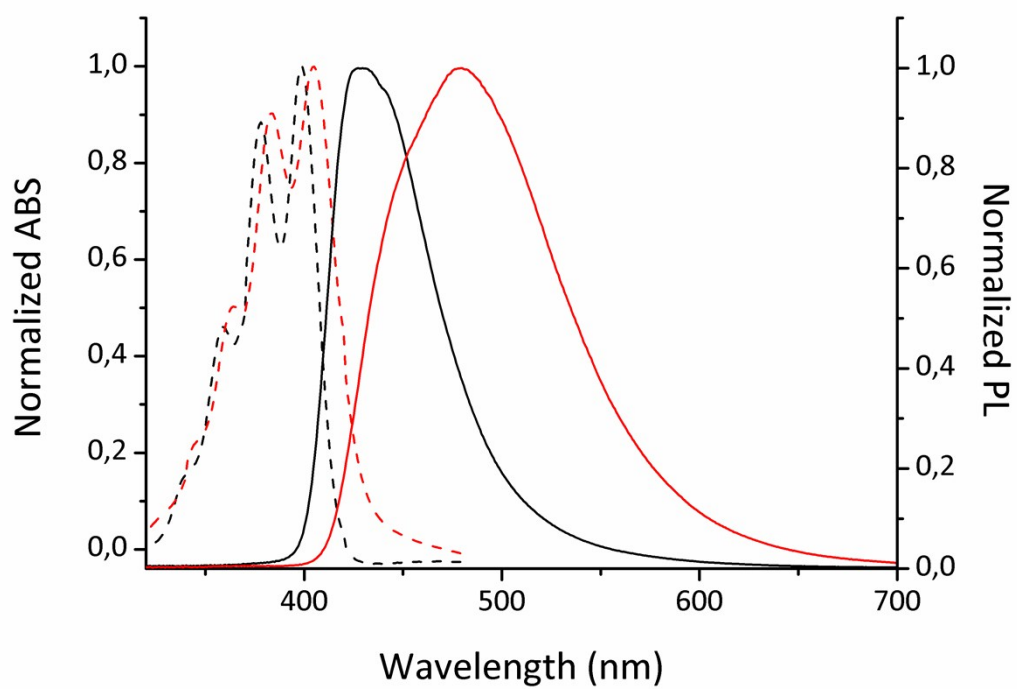


**Figure S1.** First heating scan from 23 to 400°C at 10°C/min under N<sub>2</sub> atmosphere (50ml/min). No transitions were found in the cooling step.

## 2. Spectroscopic characterization of BDNA and BD3 in solution and thin film

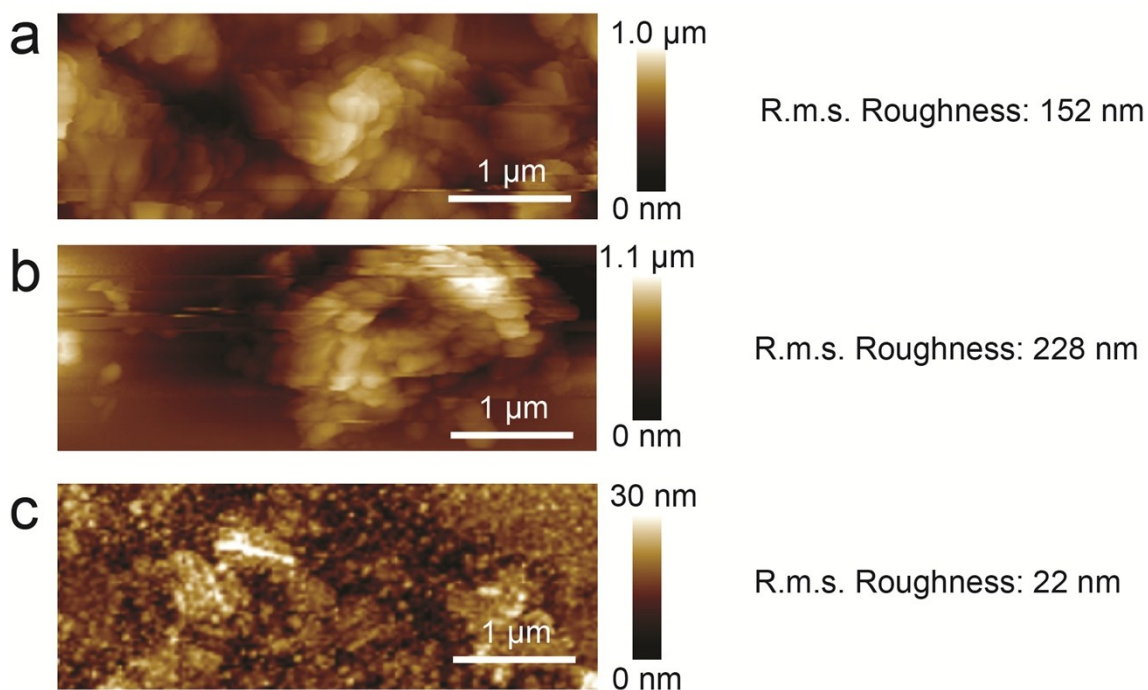


**Figure S2.** Absorption (dotted lines) and emission (solid lines) spectra of BDNA a) in  $\text{CH}_2\text{Cl}_2$  solution ( $10^{-5}\text{M}$ ) (black lines) and b) in neat films (thickness 50 nm, red lines).



**Figure S3.** Absorption (dotted lines) and emission (solid lines) spectra of BD3 a) in  $\text{CH}_2\text{Cl}_2$  solution ( $10^{-5}\text{M}$ ) (black lines) and b) in neat films (thickness 50 nm, red lines).

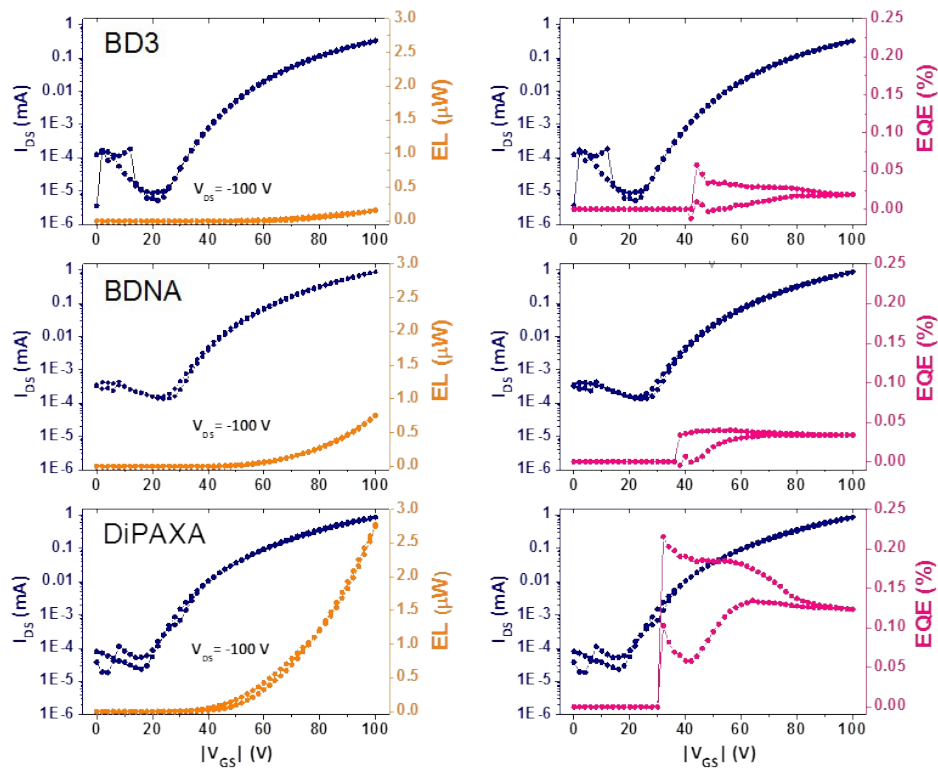
### 3. Morphological characterization



**Figure S4.** AFM morphology of a) BD3, b) DiPAXA and c) BDNA thin films.

The morphological characterization of thin films were performed by atomic force microscopy (AFM). AFM imaging was performed on a Multimode 8 microscope equipped with a Nanoscope V controller and type J piezoelectric scanner (Bruker, USA). Samples were scanned at 0.5 Hz/line in PeakForce mode using Scanasyst-Air probes (Bruker, USA) in air, imposing an applied force of 2.5 nN. Background interpolation and quantitative surface characterization were performed with Gwyddion 2.37 (<http://gwyddion.net/>). SAM thicknesses and root mean squared area roughness (Sq) values were determined by averaging at least 25  $\mu\text{m}^2$  areas.

#### 4. Device characteristics for BD3 and BDNA



**Figure S5.** (Top to bottom) Saturation transfer curves with corresponding optical power (left side) and external quantum efficiency (right side) of DB3, BDNA and DiPAXA in the same bi-layer configuration. Scales are kept the same in order to easily show the differences between the three different anthracene-based OLETs.