Supporting Information

Low-Cost and Green Fabrication of Polymer Electronic Devices by Push-Coating of the Polymer Active Layers

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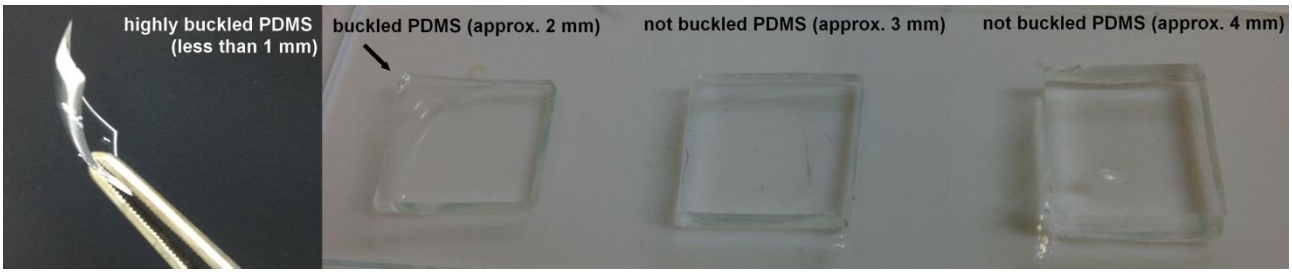

Figure S1. Comparison between PDMS stamps with different thickness showing different buckling extent upon solvent sorption.

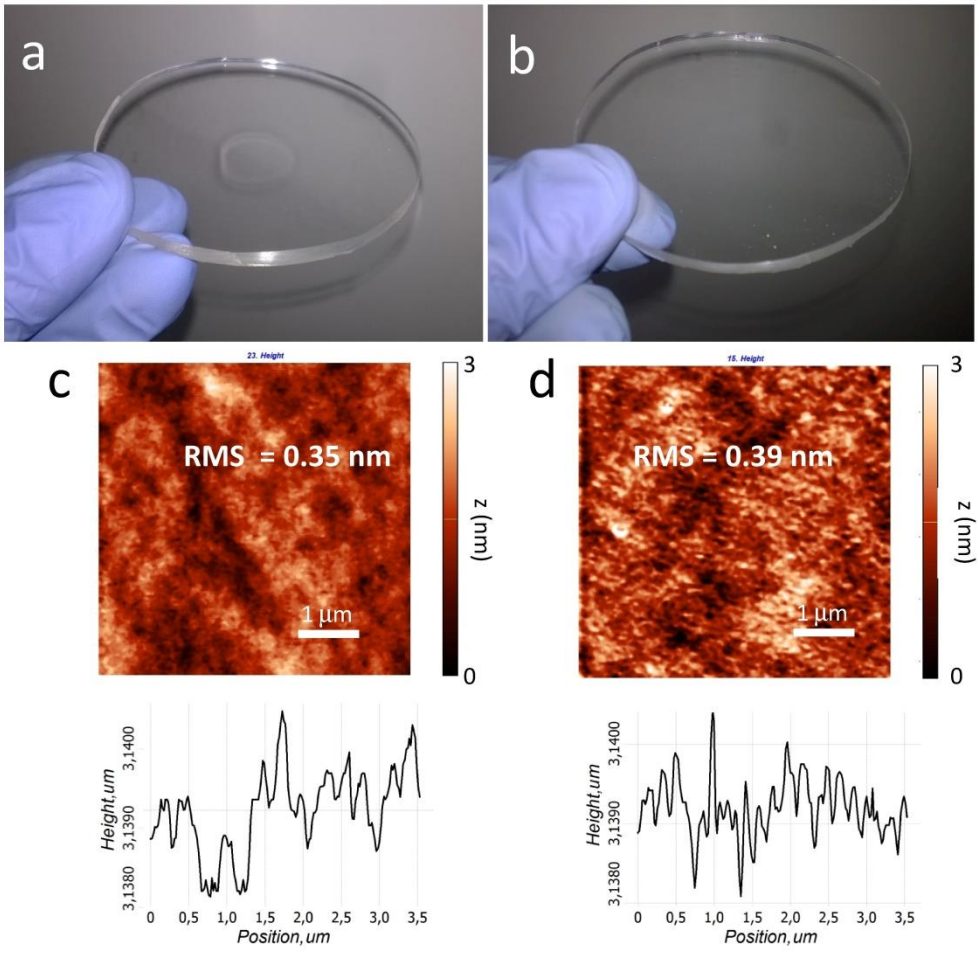

Figure S2. a-b) Digital photograph of a PDMS stamp immediately after the push-coating process showing a swelling area in correspondence with the film (a) and the same stamp after restoring by heating it at 80 °C for 10 min (b). c-d) Surface morphology (top) and profile (bottom) of a pristine stamp (c) and the same stamp after push-coating and restoring process (d).

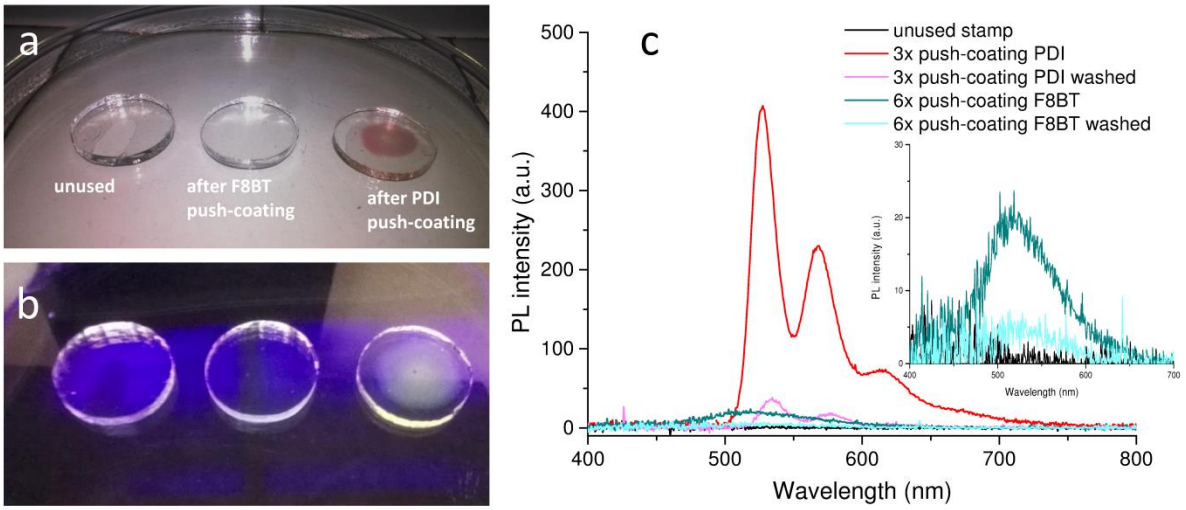

Figure S3. a-b) Visual comparison between PDMS stamps (diameter: 2 cm, thickness: 3 mm) after push-coating of a fluorescent polymer (F8BT) and a small molecule (perylene diimide, PDI), seen under ambient light (a) and under UV light (b). An unused PDMS stamp is also shown for comparison. c) PL spectra of unused, repeatedly used and washed after use stamps. In the inset, the y axis enlargement of the spectra of the lowest PL intensity is shown.

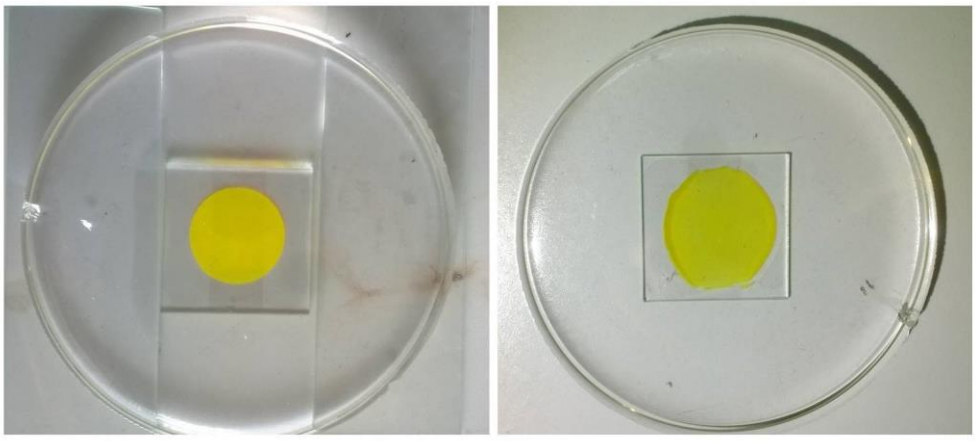

Figure S4. Visual comparison between F8BT push-coated films obtained from DCB (left) and CB (right) solutions.

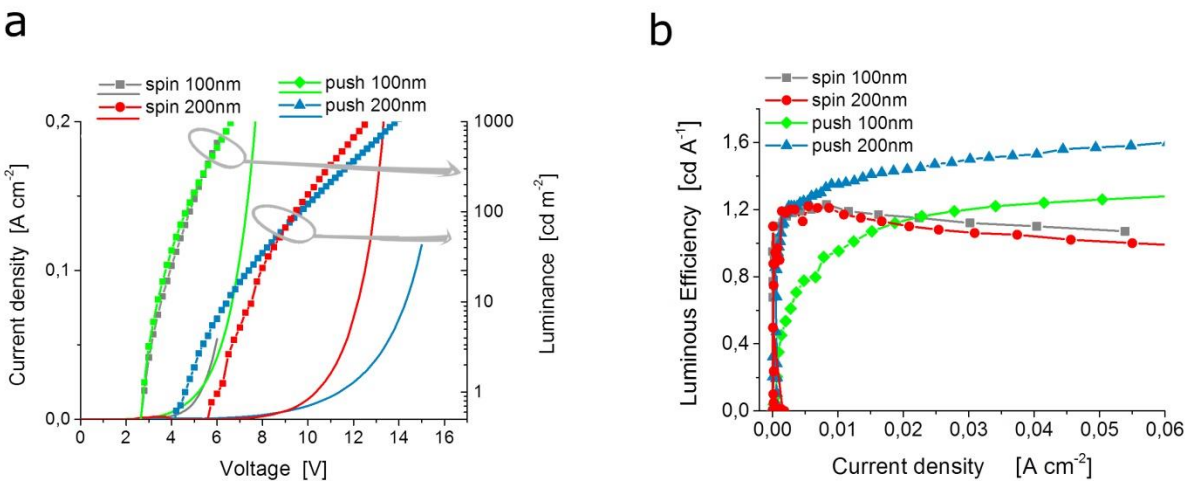

Figure S5. Characteristics of the spin-coated and push-coated PLEDs with 100 and 200 nm of F8BT. a) *J-V-L* plot. b) Luminous efficiency as a function of current density.

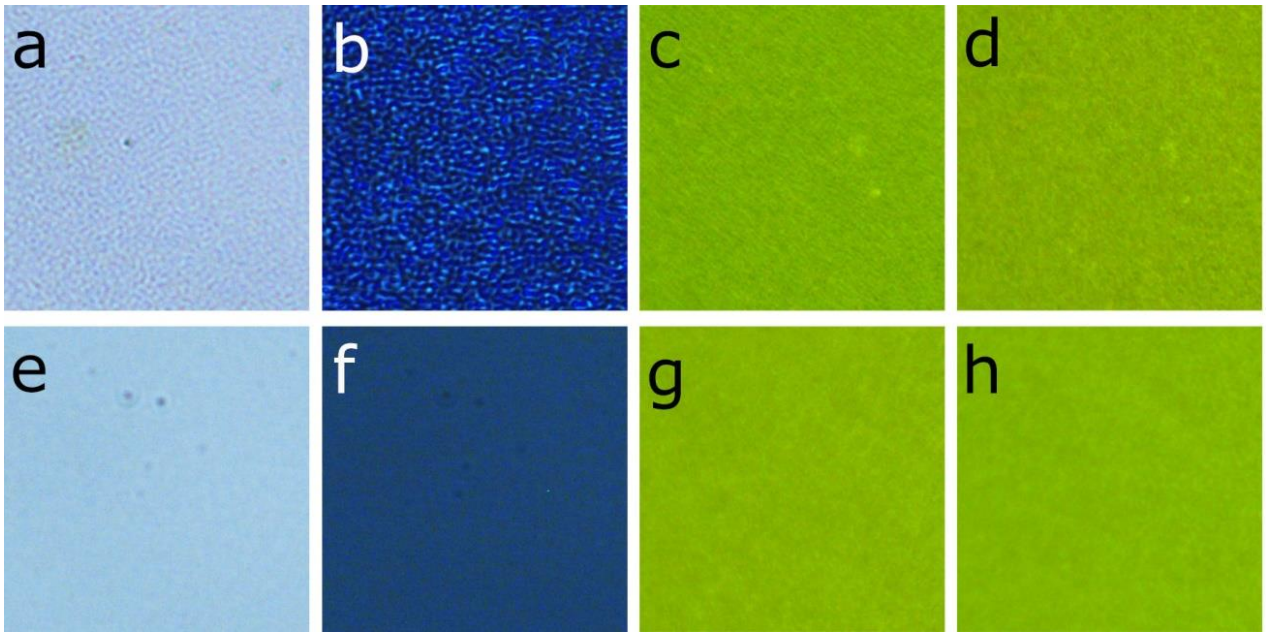

Figure S6. Microscopy images of push-coated (a-d) and spin-coated (e-h) F8BT films. a, e) Bright field. b, f) Crossed polarizers. c, d, g, h) Fluorescence images taken by filtrating the emitted light through a polarizer filter positioned in two orthogonal orientations (c, g and d, h). The couples of images a-b, c-d, e-f and g-h show the same portions of film seen through different filters. The side of all images is 40 μm.

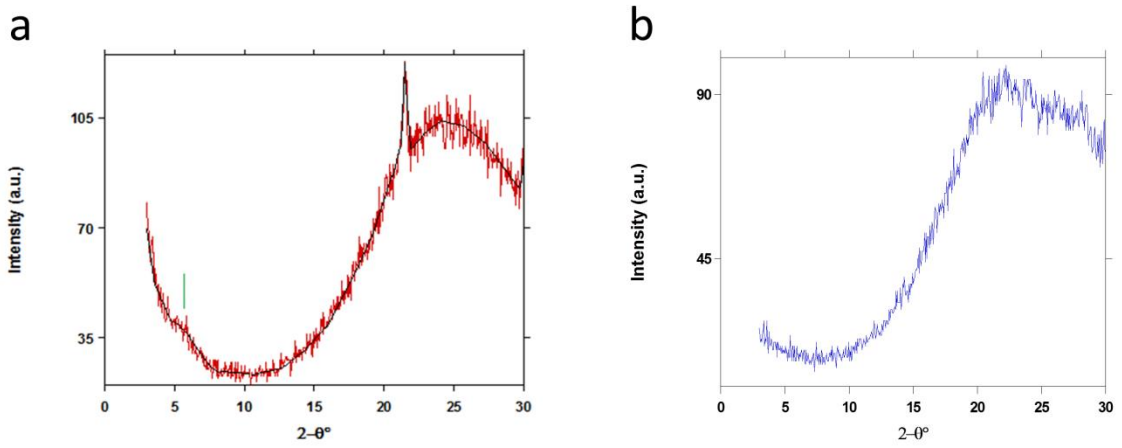

Figure S7. XRD spectra of F8BT films in Bragg-Brentano geometry. a) Prototype of device based on push-coated film with 200 nm active layer, black line indicate the smoothed spectrum, while the bar line a barely observed peak typical of crystalline part (~1.6 nm spacing). The peak at 20° is attributed to device electrodes. b) Spin-coated device of the same thickness.

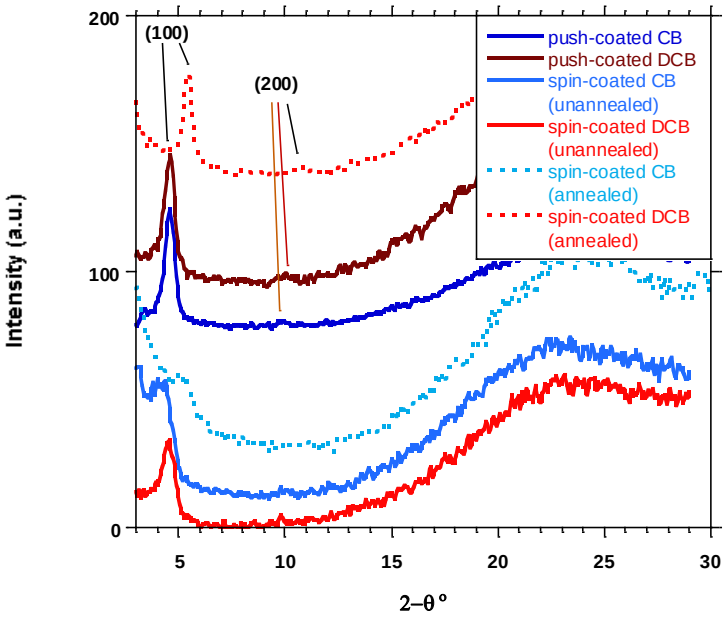

Figure S8. XRD spectra of spin-coated and push-coated P3HT/PCBM films in Bragg-Brentano geometry. An enhancement ≈10% of the (100) crystalline peak from P3HT can be observed upon annealing the spin-coated films, accompanied by a shift of its maximum towards lower d-spacing, (from 1.66 nm down to 1.63 nm). An even larger increase can be observed for push-coated films and the detailed crystallite and interspacing dimensions can be found in the article in Table 3.