

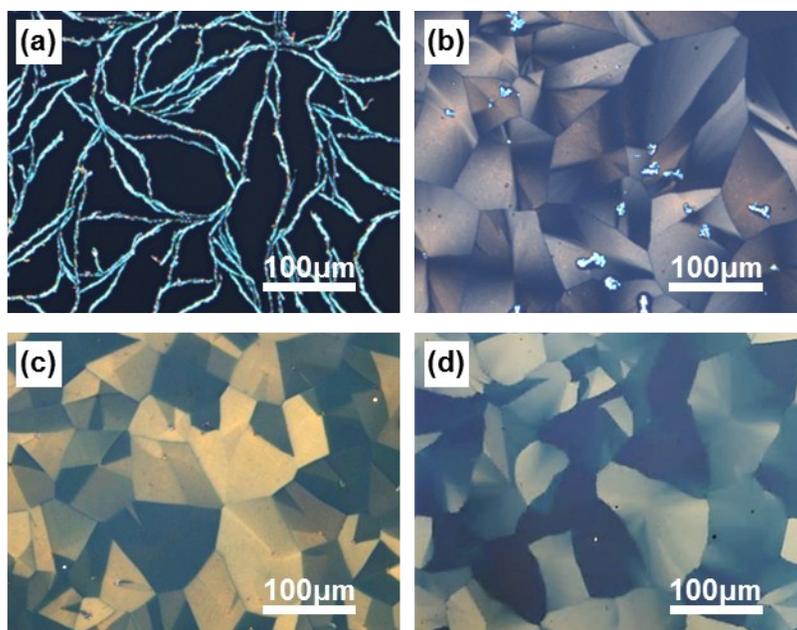
Electronic Supplementary Information

# Patterning of rubrene thin-film transistors based on electron irradiation of a polystyrene dielectric layer

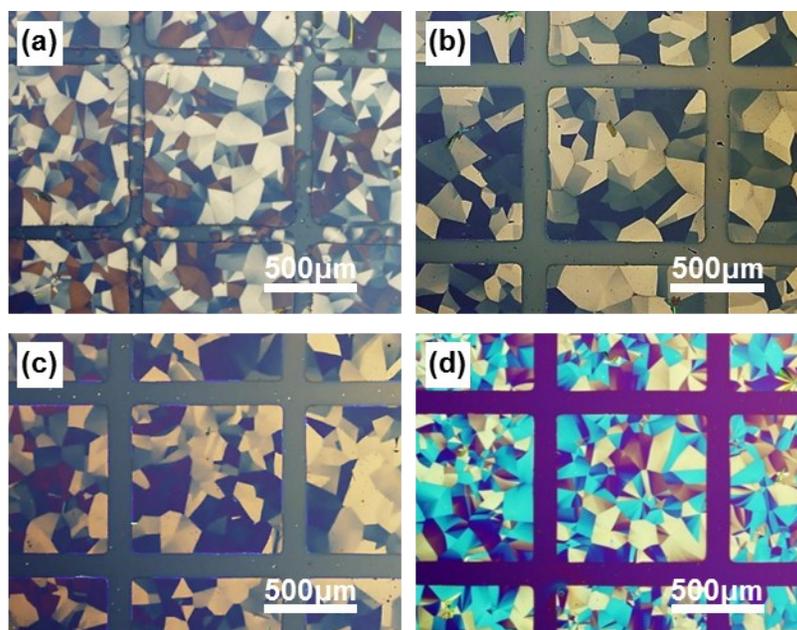
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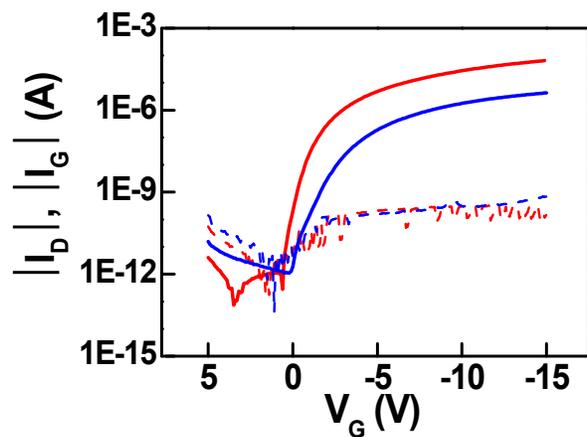
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**Figure S1.** POM images of crystalline rubrene thin films fabricated by the abrupt heating process at different annealing conditions of (a) 125 °C for 60 min, (b) 150 °C for 10 min, (c) 170 °C for 1 min, and (d) 180 °C for 1 min. All rubrene films were fabricated on PS layers electron-irradiated at the fluence of  $2 \times 10^{17} \text{ cm}^{-2}$ .



**Figure S2.** (a-c) POM images of fabricated rubrene thin-film patterns on PS layers with different thicknesses of (a) 10 nm, (b) 30 nm, (c) 50 nm, and (d) 150 nm.



**Figure S3.** Transfer characteristics of rubrene TFTs on irradiated PS layers with different thickness of (a) 20nm (red lines) and (b) 150 nm (blue lines). Solid lines are drain-source currents and dashed lines are gate leakage currents. The transfer curves were measured at a drain-source voltage of -15 V.



**Figure S4.** POM image of a patterned crystalline rubrene film fabricated on UV-irradiated PS. The thickness of PS is 20 nm.