

Surface contact potential domains on poly(3-octylthiophene) studied by electrostatic force microscopy and Kelvin probe microscopy

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Thin films π -conjugated polymers has attached much attention in the recent years due to its potential applications in (opto)electronic devices as flexible solar cells, thin film transistors, light-emitting diodes, etc. Understanding the correlation between the morphological and electrical properties is of vital importance since the structural arrangements of the molecules determines and limits the overall devices behaviour.

Poly(3-octylthiophene) is one of the most promising conductive polymers due to its high mobility. In this work we analyze the different surface contact potential domains that appear on lamellar P3OT structures. To gain further insight on the nature of these contact potential domains, ESFM measurements has been performed. It has been found that in different sample regions the capacitance varies, presenting a strongly dependence with the applied bias voltage.

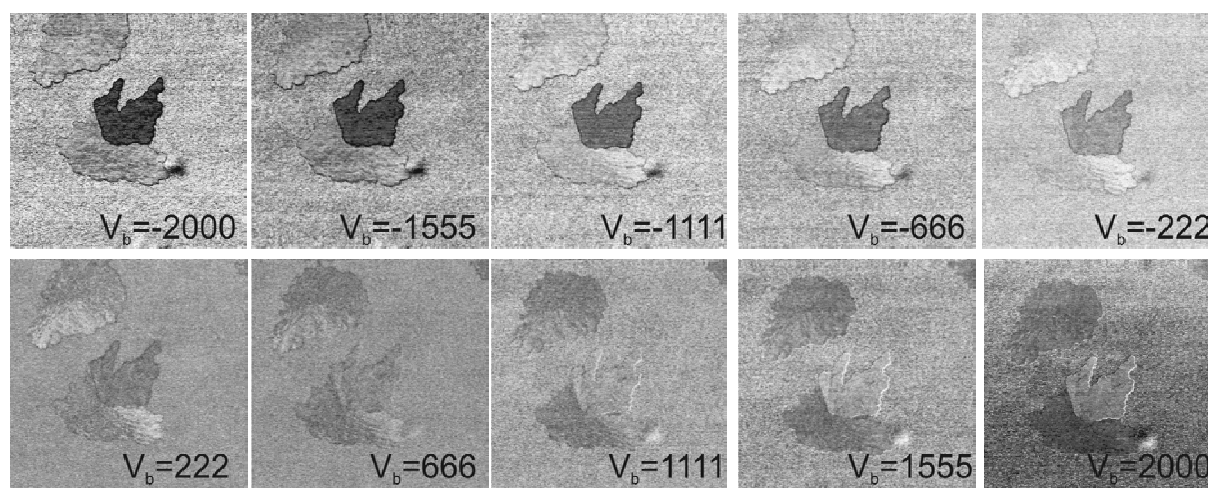


Figure: ESFM images of P3OT lamellar structures acquired at different bias voltages