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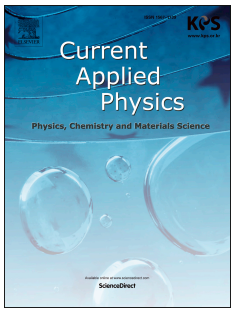

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Abstract

The use of paper as a platform to manufacture organic electronic devices, electronic paper, has expanding potential for many applications because of several properties offered. In this work, we show a study of PEDOT:PSS printed by inkjet on bond paper, vegetal paper and sheets of PET. The relation between the surface density of the deposited material, morphology and resistivity was investigated for samples printed with a commercial Hewlett-Packard(HP)® printer and Microsoft Word® software. The amount of material deposited, i.e. surface density, was controlled using the print number in the same position and changing the gray scale used in the image formation. Changing the surface density of printed PEDOT:PSS, it is possible to produce a continuous film permeating the papers fibers. Sheet resistances obtained, when 7.0 $mg.cm^{-2}$ of PEDOT:PSS were deposited on the surfaces, were: (a) 413.2 kΩ/Sq for bond paper, (b) 5.6 kΩ/Sq for vegetable paper and (c) 2.3 kΩ/Sq for PET. The exponential dependence of sheet resistance with the surface density of printed material allows us to evaluate the strong influence of substrate roughness on PEDOT:PSS conductivity and to predict, for each one, conditions to minimize it.

Keywords electronics paper, PEDOT:PSS, resistivity, roughness, inkjet printing