VIDEO ARTICLE

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Paper for Multifunctional Applications

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Abstract

World is now currently being hugely affected with the toxic legacy of disposable electronic gadgets from a tech-hungry society with the short lifespans of these technologies that results an unwanted by-product of electronic waste (e-waste) which is becoming an enormous threat to our planet. According to the U.N. the world produces 50 million tonnes of e-waste in each year, among which only 20% of this is formally recycled. However, in this rapid progressing digital age, we cannot absolutely turn away its exceptional growth in smart technology. On the other hand, with the burgeoning development in wireless technology and smart devices, we need to ensure the access of affordable, sustainable and modern systems for all which will be smart, portable, flexible, eco-sustainable and full recyclable, as it is the case of paper, for low cost and disposable applications. In this video article, we have shown some of most promising applications, like energy applications, displays, capacitors, actuators, gas sensors, magnetic devices, biosensors, food packaging, among others, where the integrated components should not compromise the recyclability or disposability of the paper itself and also be of low cost. There we aim to show that it is possible to develop a completely new, disruptive and sustainable electronics paper-based platforms not only by the simple integration of discrete devices but also by using the cellulose as a real electronic material like insulators, electrolytes, conductors and semiconductors.

Keywords: Green electronics; paper electronics; smart sensors.

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Biography of Presenting Author

Rodrigo Martins, Full Professor of Faculty of Sciences and Technology of New University of Lisbon, expert in the field of Advanced Functional Materials, Nanotechnologies and Micro-electronics; director of the Centre of Excellence in Microelectronics and Optoelectronics Processes of the Institute of New Technologies; President of the European Academy of Science; 1st Vice President of the International Union of Materials Research Societies; Group Head CENIMAT/I3N; Chair of the European Committee Affairs of European Materials Research Society; Member of the Administration board of the Journal NPG 2D Materials and Applications; Chair of the Advisory Board of the BMC Materials series from Nature-Springer; member of the international advisory board of Advanced Electronics materials from Wiley.

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