



Materiais Sustentáveis Aplicados na Geração e Armazenamento de Energia.

Sustainable Materials Applied in the Generation and Storage of Energy.

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Abstract: The demand for efficient, durable and environment friendly materials for development of devices for energy generation and storage has increased significantly over the last decade [1-3]. Regarding the generation of renewable electric power, harvesting solar energy using photovoltaic devices is being considered the most readily available and free source of renewable energy. However, the research in the field of photovoltaics (PV) still merely focuses on efficiency and efforts to increase the sustainability of the production process and the materials encompassing the device stack are of crucial importance as well to fulfil the promises of a truly renewable source of energy. Additionally to energy production, the storage of the generated power is essential for the optimization of the solar radiation use, since the intensity of this radiation is irregular during the day and during the year as well. In relation to the storage of the generated energy, supercapacitors are by far one of the most studied due to their unique properties such as fast charge/discharge process, long cycle life and both high specific power and energy density. However the concerning with the sustainability of the materials used on those devices still are not massively present on the research in this subject. Taking the aspects described above, efforts to enhance the sustainability of organic photovoltaics and supercapacitors devices are presented. Natural molecules and some friendly electrochemical synthesis were used to prepare active photovoltaic compounds and carbon materials and transition metal oxides were obtained from exhausted batteries to prepare supercapacitor actives materials.

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References:

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