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Waste or resource? Pyrolyzed products for sustainable smart materials production

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Development of industrial age technologies has raised many issues such as depletion of natural resource and environmental pollution. Waste management has become a mandatory problem to solve. However waste streams can also be considered as promising resource to produce new raw materials. Among all the available techniques, thermochemical processes play a great role as they are easily scalable and can be tailored to a wide range of applications. A very attractive thermochemical technique is pyrolysis and in particular the pyrolytic treatment of lignocellulosic waste that leads to biochar production. Biochar is a cheap and easy-to-tune carbon material that has already found application as material for building insulation, waste water treatment, solid fuel and electrocatalysis. It has also been used as filler for composites production to enhance the mechanical and electronic

properties. In this presentation, we are showing highlights about the use of biochar from several lignocellulosic waste streams (coffee residues, olive trunks, bamboo cuts) as filler for epoxy resin composites and as conductive carbon material for sensors and electroshielding applications.

Biography

A Tagliaferro is an Associate Professor in Solid State Physics at Politecnico Torino. His research activity is mainly on carbon nano and micro structured materials, with particular focus on those from green sources. Raman characterization of such materials and their application in composites, sensors and energy are the main subjects of his current activity. He has published more than 160 papers in International Journals and is Associate Editor for BioNanoScience (Springer).

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