

“Interfacial Micromechanics of Bacterial Cellulose Biocomposites Using Raman Spectroscopy”

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This talk will present the use of bacterial cellulose nanofibre networks to design biocomposites. The materials have been prepared by embedding bacterial cellulose networks in-between two transparent and amorphous polylactic acid films using a compression moulding method. It will be shown, by scanning electron microscopy, that the resulting material is constituted of various layers. In addition, the possibility to identify stress-transfer mechanisms in non-modified and chemically modified layered biocomposites using Raman spectroscopy will be demonstrated. This stress-transfer quantification method is based on following the shift towards a lower wavenumber of a specific Raman band upon external tensile deformation. Furthermore, it will be shown that it is possible to design biocomposite materials having a range of mechanical properties. These materials could be potentially used as biomaterials for biomedical applications such as body implants.

Martes 19 MARZO 2013, 13:00 horas

Sala de Conferencias, Tercer Piso, Departamento de Física
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