

Solvay Colloquium



Professor Philippe Dubois

(Center of Innovation and Research in Materials and Polymers
MATERIA NOVA Research Center & UNIVERSITY of MONS)

Nanostructuration in polymeric materials: macro-performance via nano-scale chemical tailoring

Recent advances in polymer blends and (nano)filled polymers clearly highlight how much versatile and rich these research domains can be. Particularly polymer nanocomposites, singularly based on polymer blends compatibilized by nanoparticles, appear highly promising paving the way to novel families of materials offering extraordinary property improvement.

This contribution aims at presenting new orientations currently given in the search of such polymeric materials, actually by combining two (or more) nanofillers providing synergistic behaviour, developing new processing technologies (reactive extrusion and layer-by-layer techniques,...) and nanostructuring the nanocomposite materials by specifically localizing/orienting the nanofillers, e.g., in co-continuous polymer blends using surface-treated nanoparticles as interfacial compatibilizers.

Mostly three types of nanofillers will be studied, i.e., carbon nanotubes, silica nanoparticles and cellulose nanocrystals, each finely dispersed and even oriented in either thermoplastic, thermosetting or elastomeric matrices. The resulting polymeric materials will display remarkable thermo-mechanical performances (good stiffness/toughness balance) but also more specific properties such as electrical conductivity, flame-resistance, and anti-biofouling. Some industrial applications currently developed based on these novel (nano)materials will be presented as well.

Tuesday 16 February 2016 at 4.00 P.M.

COFFEE AND TEA WILL BE SERVED AT 3.45 P.M. IN FRONT OF THE SOLVAY ROOM

SOLVAY ROOM

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