

Hybrid Polymer Nanocomposites		
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Summary		
B3.III	<p>Hybrid (nano)materials are promising functional materials as they combine characteristics and properties both from organic(polymer) materials and inorganic phases. This field is of interest both for academics as it offers the possibility to merge different scientific communities, i.e. scientists acting in organic, macromolecular, and inorganic chemistries, as well as for materials engineers and for applications in different industrial sectors such as energy production and storage (photovoltaics, batteries, fuel cells, ...), health (drug delivery, biomaterials, imaging, ...), functional coatings, environment and safety (membranes, fire resistance, ...), nano- and microelectronics, optics, etc. Different approaches could be used to design such polymer/inorganic hybrid nanomaterials, i.e. from sol-gel chemistries combined with polymer chemistries, design and introduction of nanobuilding blocks such as metal-oxo nanoclusters or nanoparticles, nanofibers, nanotubes, etc. in order to introduce functionalities from a proper design of the matter from nanoscale up to the scale of the final part used for the application. In addition, hierarchical and bio-inspired materials could be proposed for innovative applications which could take also into account Life Cycle Analysis approach.</p>	
	<p>Contributions on fundamental and applicative studies are invited on <i>i/</i> synthesis and formulation of functional polymer-based hybrid materials, <i>ii/</i> analysis and development of methods for characterization at different size scales, <i>iii/</i> processing of the O/I hybrid materials and innovative processing methods which could be offered for introducing functionalities, <i>iv/</i> relationships with architectures and morphologies at different scales including modelling and simulation, <i>v/</i> challenging applications of functional polymer hybrids and nanocomposites.</p>	