

Repetita iuvant... Polymer Microscopy

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The growing demand for lightweight and multifunctional materials systems is diffuse across a huge number of technologies and applications. These systems most often contain polymeric components which, through careful synthetic control and processing techniques, are tailored for optimized properties by tuning the structure from the molecular level to the nano, micro and bulk scale.

Currently, polymers and macromolecules are used for an incredibly diverse set of materials applications ranging from building insulation to electronics, from packaging to agriculture, from automotive to medical applications, both in synthetic and natural materials systems, building also bridges to the biological sciences by means of green chemistry.

Microscopy has always played a leading role in the evolution of knowledge on several polymeric material classes, such as polymer nanocomposites, semicrystalline polymers, block copolymers.

This work briefly outlines the current state of art and new challenges in the development of new polymer-based materials and their investigation via microscopy techniques.