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Microstructure Evolutions and Mechanical Behavior of Semicrystalline Polymers

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Message from the Guest Editor

Reliable prediction of the mechanical behavior of semi-crystalline polymers requires microstructural characterization and an understanding of the mechanisms that link the microstructure and its evolution along the deformation with the mechanical properties.

Significant progress has been made in recent decades, particularly in the description of the elastic regime, with in-situ experimental techniques or numerical simulations. In the case of a high deformation regime or fatigue, some problems remain. More precisely, the deformation mechanisms are not fully understood at the molecular scale or at the scale of crystallite stacks and at the spherulite scale where the distribution of stress and strain remains difficult to describe.

The purpose of this Special Issue is to take stock of all experimental or theoretical contributions that may provide information on this research field in order to identify perspectives for realistically understanding and modeling mechanical behavior and life time of semi-crystalline polymers.

Keywords

- Semi-crystalline polymers
- Mechanical behavior
- Microstructural characterization
- Modelling

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Message from the Editor-in-Chief

Crystals are a very important class of structured material, both from a scientific and technological viewpoint. In 2011, the Nobel Prize in Chemistry was awarded to Dan Schechtman for his work on quasicrystals. Our journal already expresses in its name *Crystals* that its focus centers around all aspects of this class of materials, which has fascinated humankind from its beginning. Despite decades of research on crystals, it remains a hot and fascinating research topic.

Crystals is a good platform for dissemination of knowledge in this area.

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