

Special Issue

Microstructure Evolutions and Mechanical Behavior of Semicrystalline Polymers

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

Guest Editor

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Message from the Editor-in-Chief

Welcome to *Crystals*, the journal dedicated to the fascinating world of crystallographic research! Crystals are more than mere decorative elements; they hold the key to understanding the fundamental structure of matter. Our mission is to explore the crucial significance of this research across various fields. From medicine to technology, chemistry to geology, crystals play a vital role. Their structure provides insights into new advanced materials, innovative drugs, and groundbreaking technologies. Through *Crystals*, we delve into the microscopic world to discover solutions that will shape the future. Join us on a journey through the *Crystals*, where science merges with beauty and innovation.

Editor-in-Chief

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