

An introduction to crystalline polymers.

Bernard Lotz

Two introductory seminars will be devoted to semi-crystalline polymers.

The main themes will be :

1. Crystalline polymers. Phenomenology and investigation techniques

Polymer crystals. Spontaneous morphologies and structures.

The four levels of structural organization : chain, cell, lamella, spherulites.

Crystalline morphologies from the bulk (spherulites) and from solution (single crystals).

Investigation techniques (global and local, the latter with a strong emphasis on electron microscopy)

2. Crystalline polymers : nucleation and growth mechanisms

The classical nucleation and growth : primary and secondary nucleation, growth regimes.

Impact of pre-phases and mesophases on polymer crystallization and morphologies.

Contribution of oligomers and fractions to the analysis of growth mechanisms.

Spontaneous and controlled morphologies.