Polymer Fracture Mechanics

Mechanical behavior of polymers, including deformation and yielding, damage mechanisms, rubber toughened polymers, particulate composites and fiber- reinforced polymers. Experimental methods to study the morphology and the mechanical behavior of polymer-based materials will be introduced.

Fracture mechanics applied to polymers. Linear Elastic Fracture Mechanics, Elastic-Plastic Fracture and Post-Yielding Fracture. Both theoretical and experimental methodologies will be included. Different case studies will be considered.

Program

- Mechanical behavior of polymers, including deformation and yielding (2 h).

- Damage mechanisms, rubber toughened polymers, particulate composites and fiber-reinforced polymers (2h).

- Experimental methods to study the morphology and the mechanical behavior of polymer-based materials (2h).

- Fracture mechanics applied to polymers. Linear Elastic Fracture Mechanics, Elastic-Plastic Fracture and Post-Yielding Fracture (2 h).