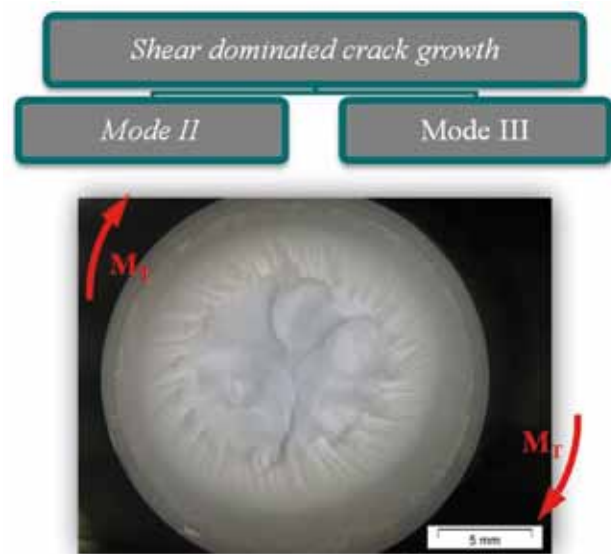
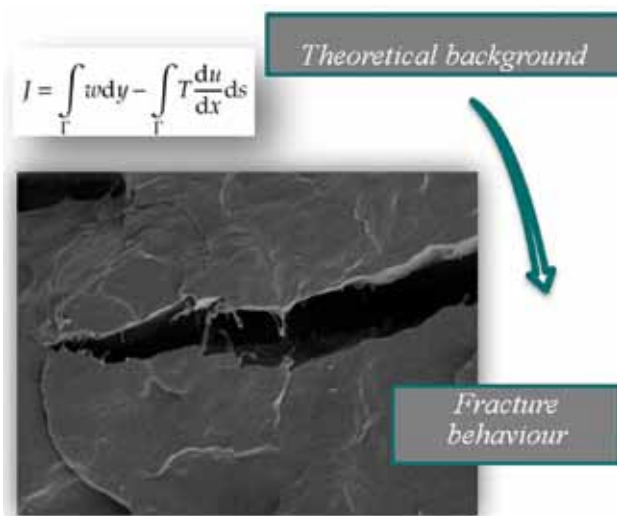


Polymer Fracture Mechanics

Development of fracture mechanics concepts for polymers extended to shear dominated crack growth and application of non linear elastic plastic fracture mechanics to soft materials.

Nearly every structural element needs reliable lifetime prediction and a detailed analysis of fracture behaviour. For polymeric materials the crack growth in Mode I is well understood in contrast to the shear dominated fracture behaviour in Mode II and Mode III. Therefore, the application of new testing procedures for Mode II and Mode III crack growth in polymers is the first part of current research efforts.



The second part of this research focuses on a group of polymers which display high plastic deformations in front of the crack tip. These materials are characterized with the help of non linear elastic plastic fracture mechanics and their parameters. One example of a parameter to describe the fracture behaviour of extremely tough types of polypropylene is the J-Integral.



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Research Focus:

Fracture mechanics concepts extended to shear dominated crack growth and soft materials