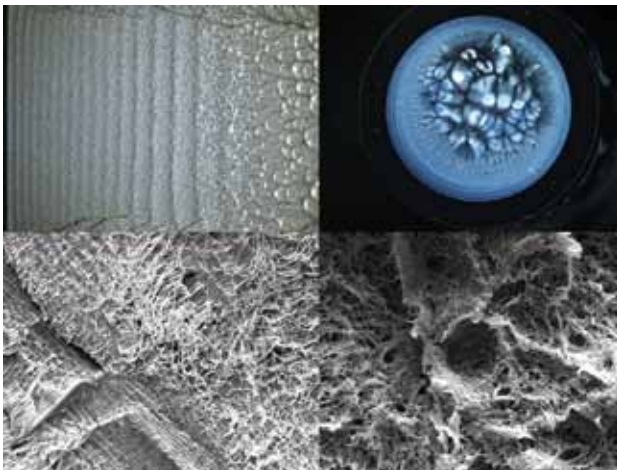


## Polymer Fracture Mechanics

Fracture mechanical characterization of polymeric materials for industry applications – Focus on polymer pipe materials, additive manufacturing and testing under high strain rates.

Failure of structural applications can have grave consequences. Therefore, it is important to correctly describe the damage and failure behaviour of the materials in use. Due to their manifold properties, polymers have penetrated into a broad range of applications. Therefore, they have to be tested, characterized and validated under various conditions to account for their highly temperature and time dependent nature. This can mean temperatures somewhere between -120 °C to well above 100°C, or strain rates from static loading to impact testing.



Currently several projects, using fracture mechanical characterization of polymers, are running and include topics and industries such as:

- Polymer Pipe Industry
  - Water and gas distribution
  - Multi-Layer sewer pipes
  - District heating
- Additive manufacturing processes such as
  - Fused Filament Fabrication (FFF)
  - Selective Laser Sintering (SLS)
  - Stereolithography (SLA)



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**Research Focus:**

Polymer Fracture Mechanics, Polymer Pipe Materials, Impact Testing, Additive Manufacturing: Process-Structure-Property relationships