

Characterization and Modeling of Wood Fibres and Wood Fibre Composites

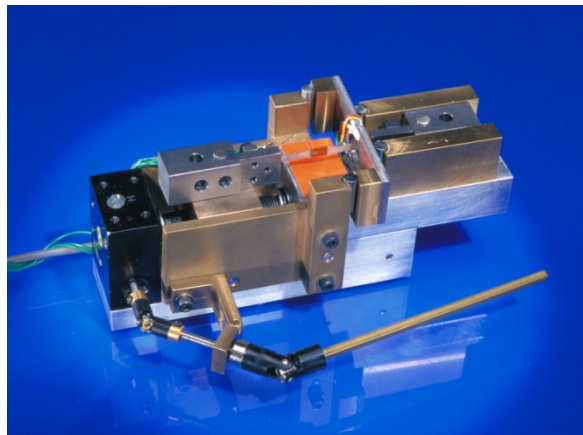
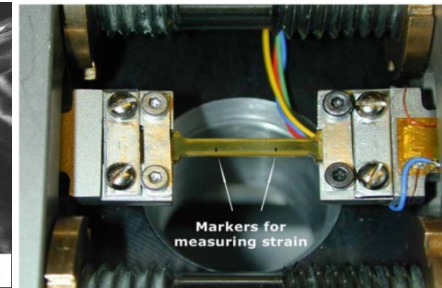
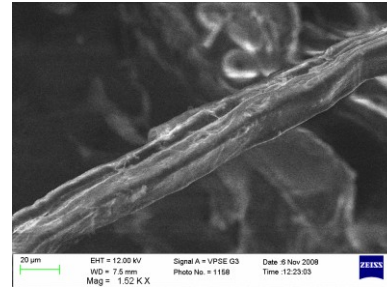
Materials Research Division

”Experimental and computational methods in wood mechanics”
Cost Action FP0802: May 11-13, 2009 Vienna, Austria

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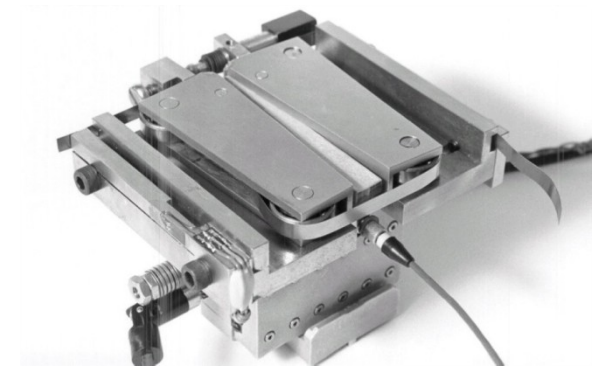
Wood fibre characterisation and Micromechanical testing

- Inspection of fracture surfaces for initial flaws and process defects
- Correlate structures of fibres with strength
- Interface adhesion with polymer matrix
- Swelling behaviour of wood fibres



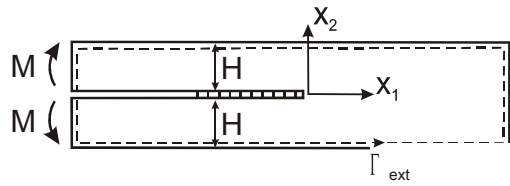
Tensile test fixture

Failure mechanism in ESEM
Tensile
Compression
Bending
Crack growth

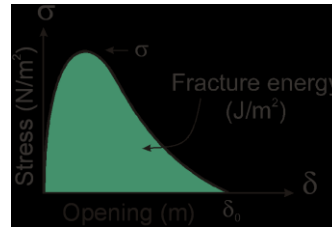


Fracture mechanism fixture

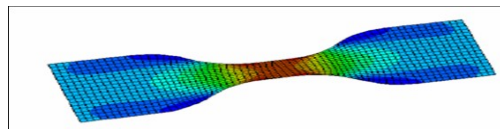
Advance Testing and Modeling of Wood Fiber Composites



Modelling of Crack Bridging law

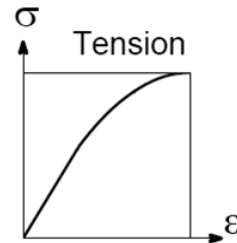


Uneven moment DCB method
Fracture toughness



Finite element modelling

Measurement and prediction of elastic and failure mechanism



Tensile testing