

Process Simulation of Advanced Composite Structures

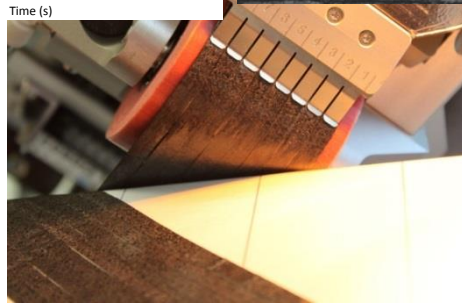
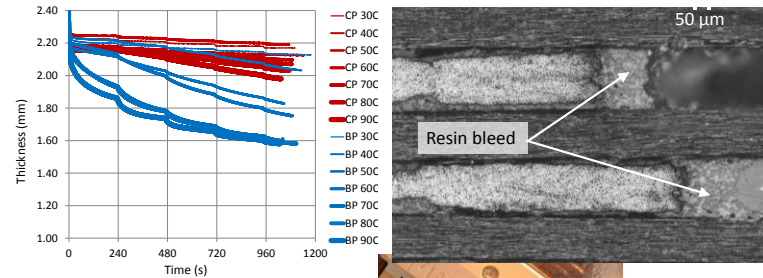
Jonathan Belnoue, ACCIS, Faculty of Engineering

Materials & processes

Simulation

Validation

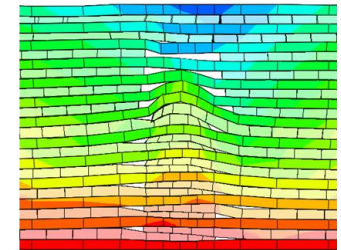
Material characterisation



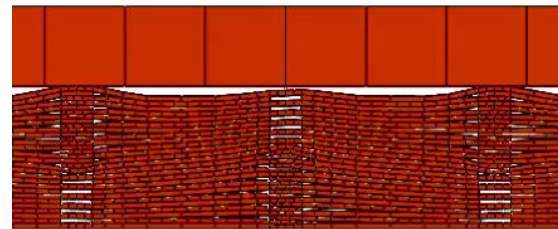
Mathematical Model

$$\Psi^F = \left(\frac{I_0 W_0}{d h_0} \right)^2 \chi_1 \frac{4 J k e^b}{\chi_f (a+2)} \left(\frac{1}{I_1^b} \right) \left(\sqrt{\frac{k}{I_1^b}} - \frac{k}{\sqrt{\chi_f}} \right)^2 \left(\frac{1}{2 I_1^b} \right)^{\frac{a+2}{2}} \frac{1}{J_2^2} \frac{a+2}{2}$$

Model prediction



Simulation (e.g. FEM)



Micrograph

