

FEM simulation of glulam beams with stochastic material properties

Cristóbal Tapia Camú







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- ▶ Material properties of finger joints related to the properties of the adjacent boards

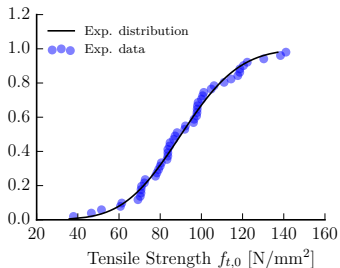
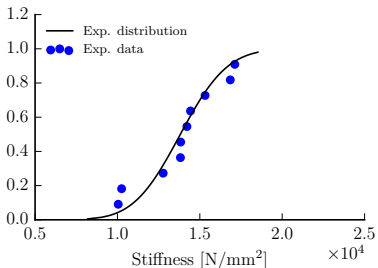
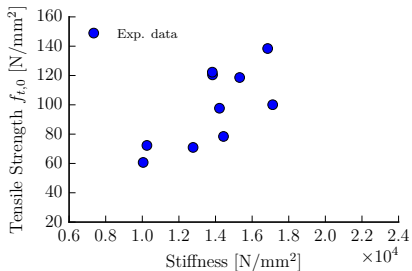
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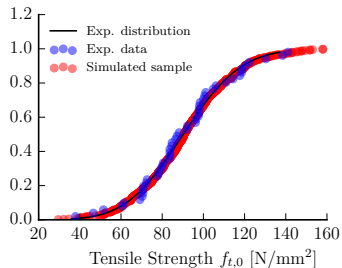
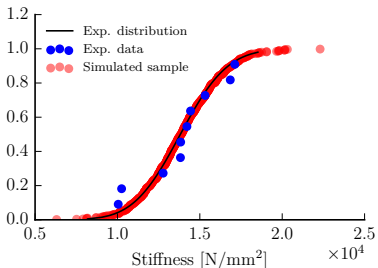
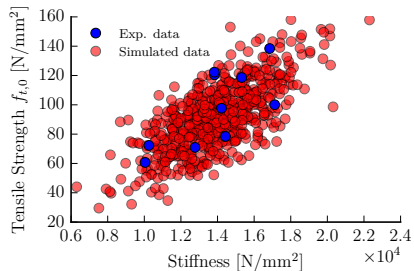
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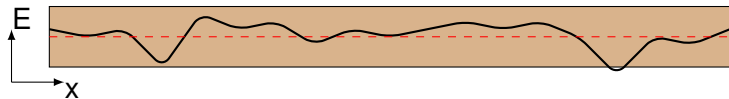
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- ▶ Crack initiation and propagation (XFEM: eXtended Finite Element Method)
 - ▶ softening

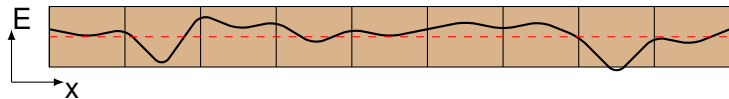
distribution of “global” properties of boards

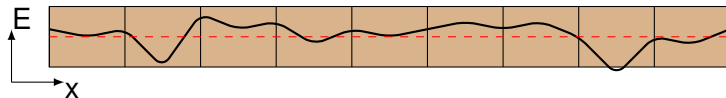
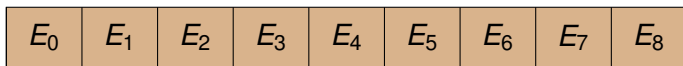


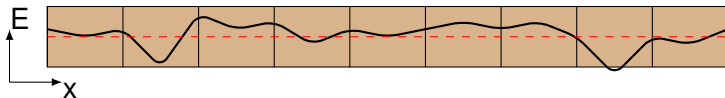
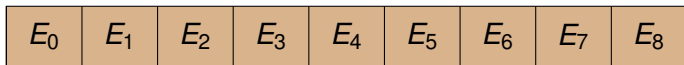
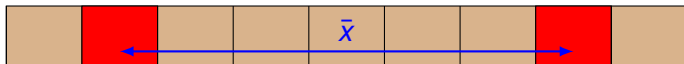


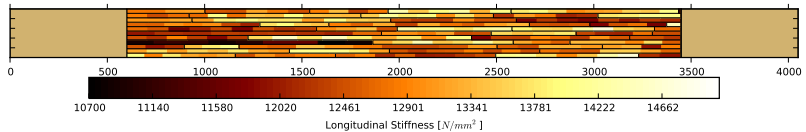
distribution of properties within boards







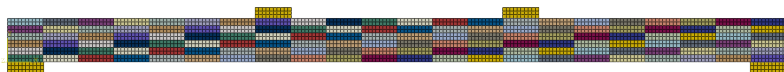




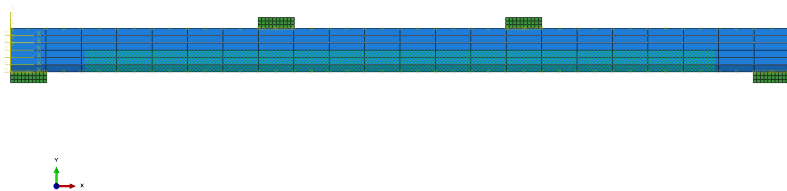
Finite Element Model

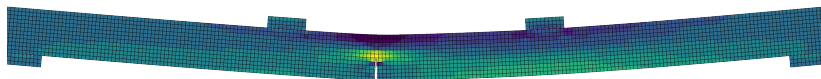
Finite Element Model (new model. . . work in progress)

Definition of material properties



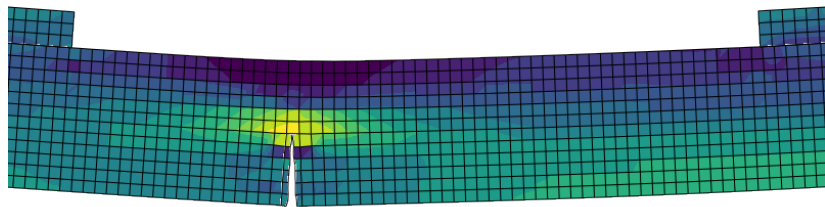
Definition of failure region (XFEM)

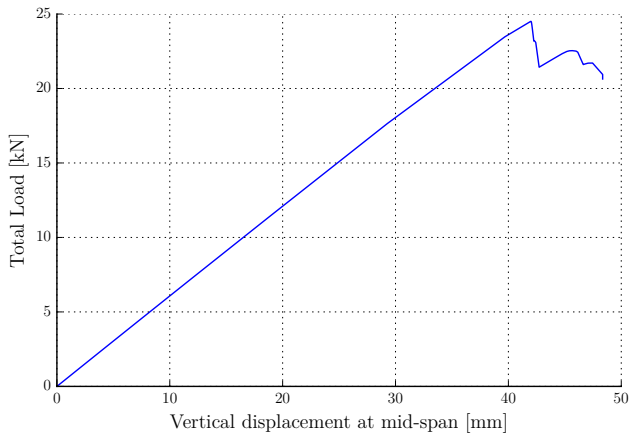


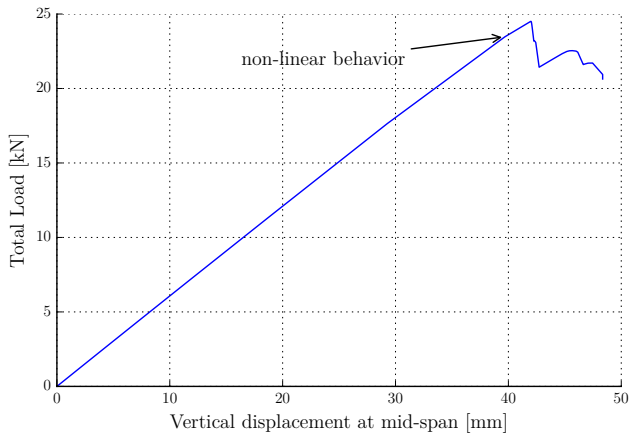


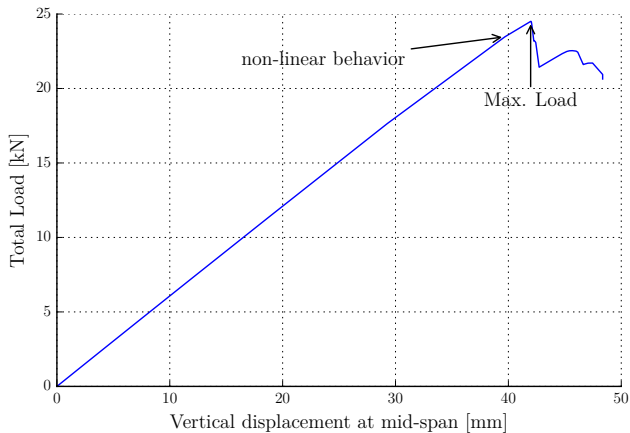
MPA - Lager mit Furchen (01) (1) (1)
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Unit: International
 Material: 100 - len Length = 10.000
 Density: 1500.0 - 1512
 Deformation: 0.0 - Deformation Scale Factor = 1.000000









Video!

Thanks for your attention!