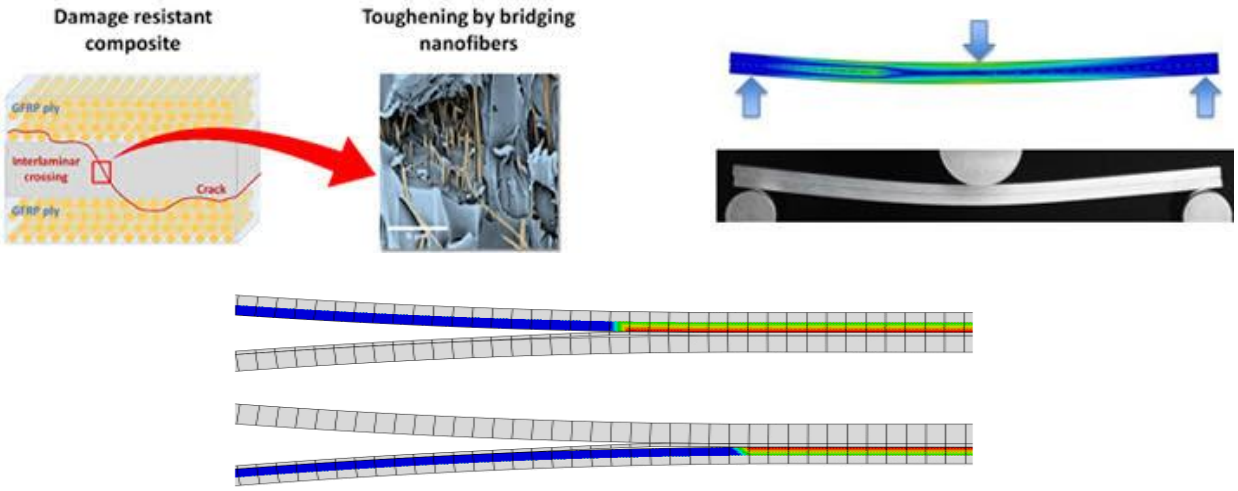

Bachelor-thesis

Determining the cohesive parameters of the PCL‘s nanofiber mat

Delamination is a critical failure mode in laminate structures and the interleaving technique has been applied successfully to improve the fracture toughness of such structures. A recent approach to increase the interlaminar properties of laminate components is using nanofiber mats. The thermoplastic polycaprolactone (PCL) nanofibers showed greater reinforcement against delamination compared with other polymeric materials when interleaving composite laminates.

In order to model nanofiber enriched laminate structures the cohesive parameters of the interlaminar layers are required. The calculation of those parameters is based on the results from Double Cantilever Beam (DCB) and End-notched Flexure (ENF) tests. Once the parameters are extracted from tests, the models are iterated and the nanofiber enhanced laminate is validated numerically.

Your tasks

- Experiments on nanofiber enriched laminate (DCB and ENF tests)
- Analytical evaluation of the cohesive parameters
- Numerical analysis using cohesive elements

Your skills

- Abaqus (basic level)

Announced

05/07/2019

Beginning

As soon as possible

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