GROWTH OF INTERFACE CRACKS ON CONSECUTIVE FIBERS: ON THE SAME OR ON THE OPPOSITE SIDES?

L. Di Stasio[1,2], J. Varna[1], Z. Ayadi[2]

[1] Division of Materials Science, Luleå University of Technology, Luleå, Sweden

[2] EEIGM & IJL, Université de Lorraine, Nancy, France

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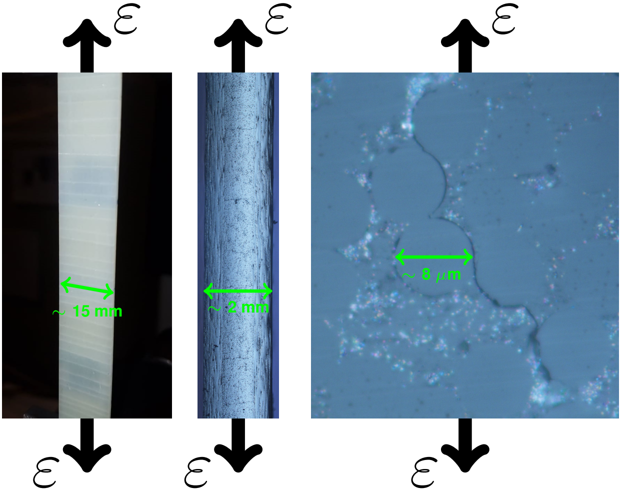
Outline

- Micromechanical Modeling of Initiation of Transverse Cracks
- Conclusions

Micromechanical Modeling of Initiation of Transverse Cracks

Initiation of Transverse Cracking in FRPCs: Microscopic Observations



Left:
front view of $[0, 90_2]_S$, visual inspection.

Center:
edge view of $[0, 90]_S$, optical microscope.

Right:
edge view of $[0, 90]_S$, optical microscope.

CONCLUSIONS

Conclusions

- ➔ $f_{\text{straight crack}}\left(\Delta\theta\right)$: $\checkmark G_{I}$, $\times$ G_{II}

  $f_{\text{inclined crack}}\left(\Delta\theta\right)$: $\checkmark G_{I}$, $\checkmark G_{II}$, $\times$ $\nexists$ $f_{\text{inclined crack}}\left(\Delta\theta=\frac{\pi}{2}\right)$

  $f_{\text{curved crack}}\left(\Delta\theta\right)$: $\checkmark G_{I}$, $\checkmark G_{II}$

- ➔ scaling breaks for $\Delta\theta \leq 20^{\circ} \rightarrow$ microstructure is important for small debonds!

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