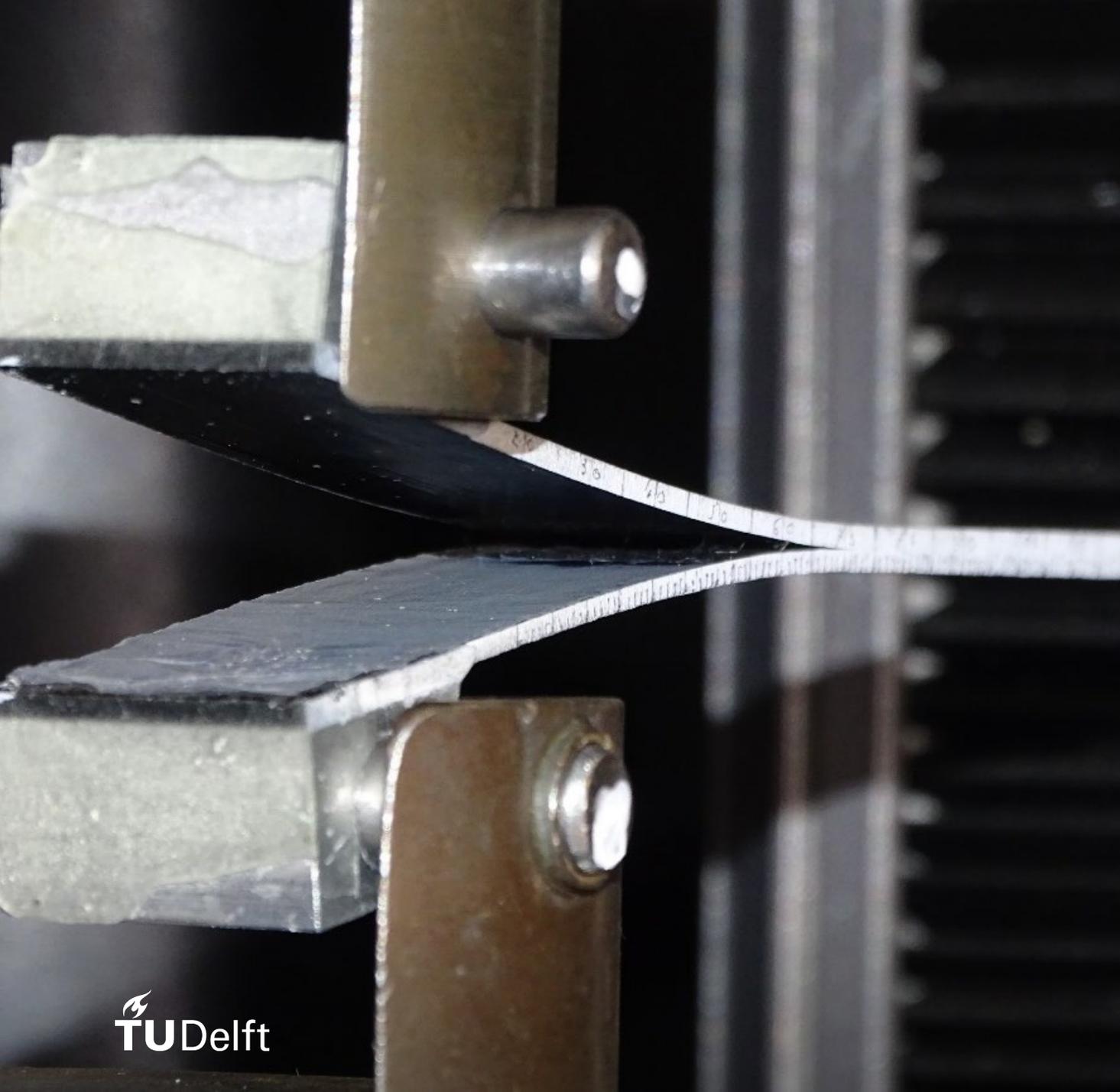


# Studying Planar Delamination Growth Under Out of Plane Load

John-Alan Pascoe | [j.a.pascoe@tudelft.nl](mailto:j.a.pascoe@tudelft.nl)

2-12-2025



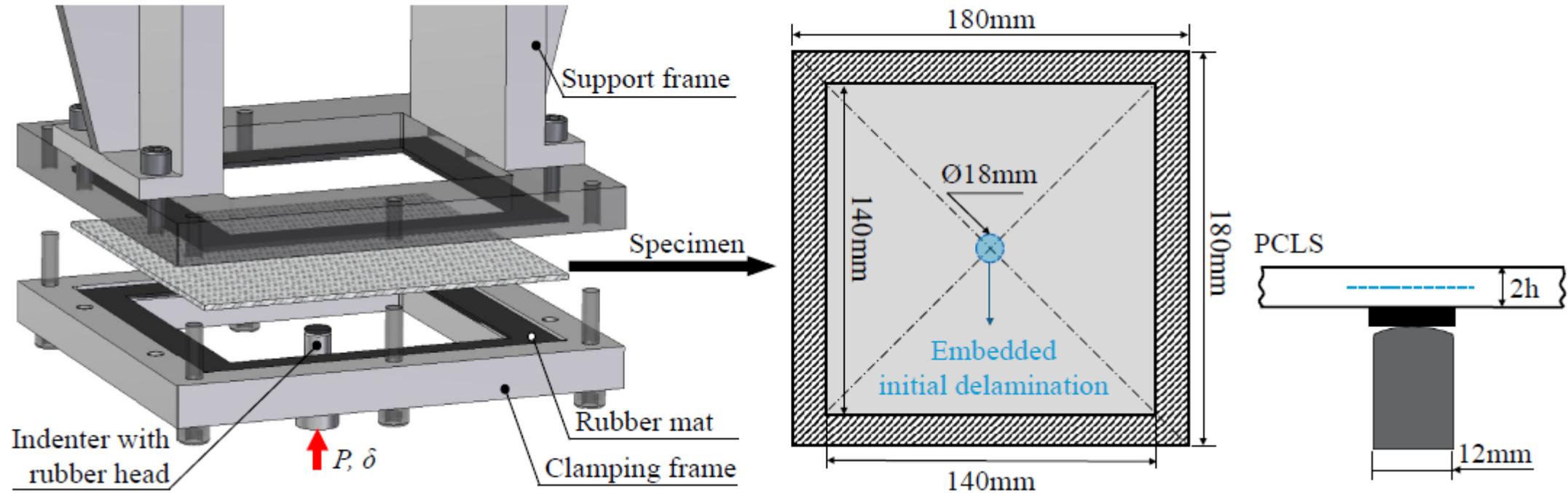


# What we test in the lab

What we  
really want to  
predict



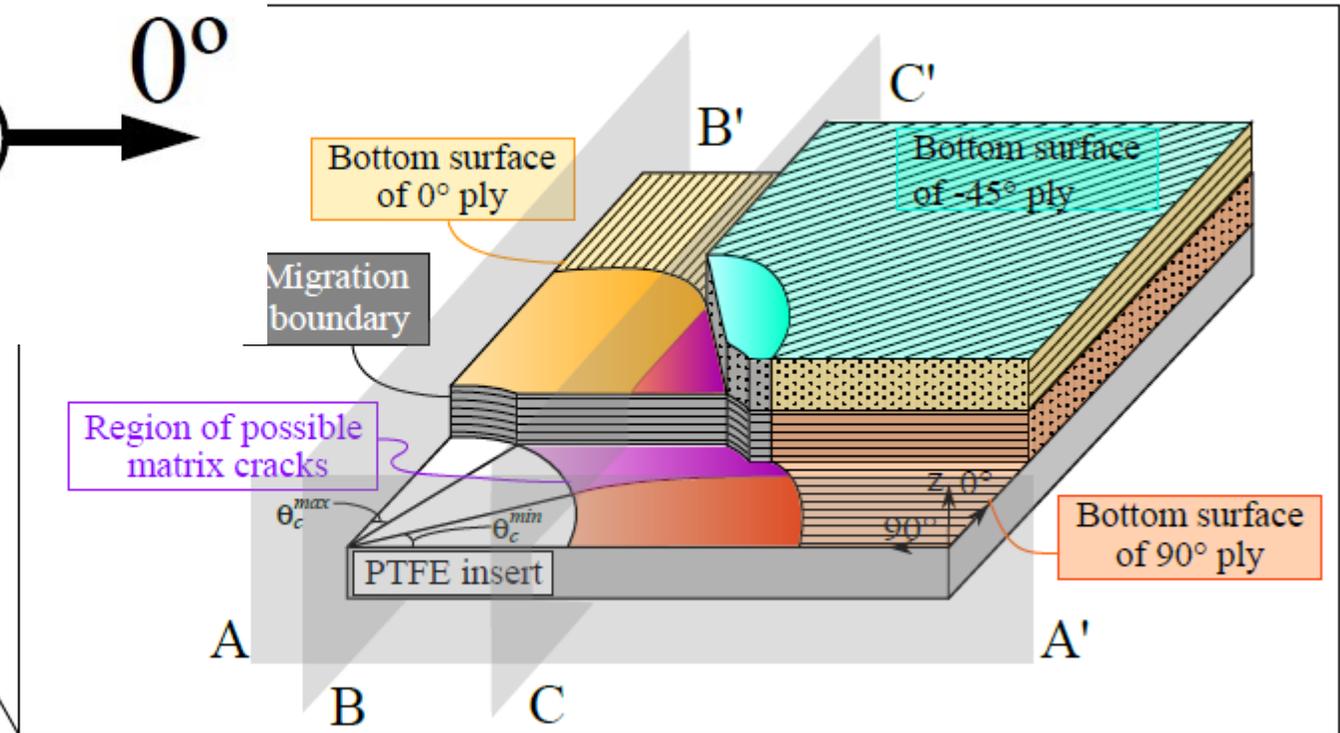
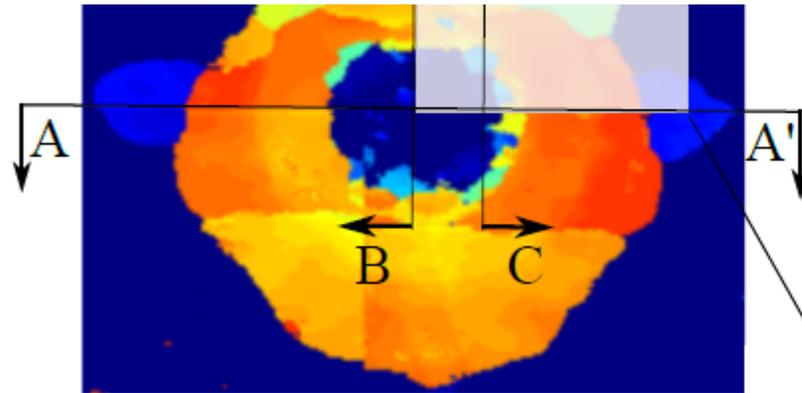
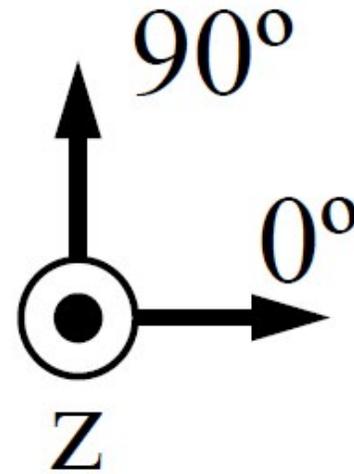
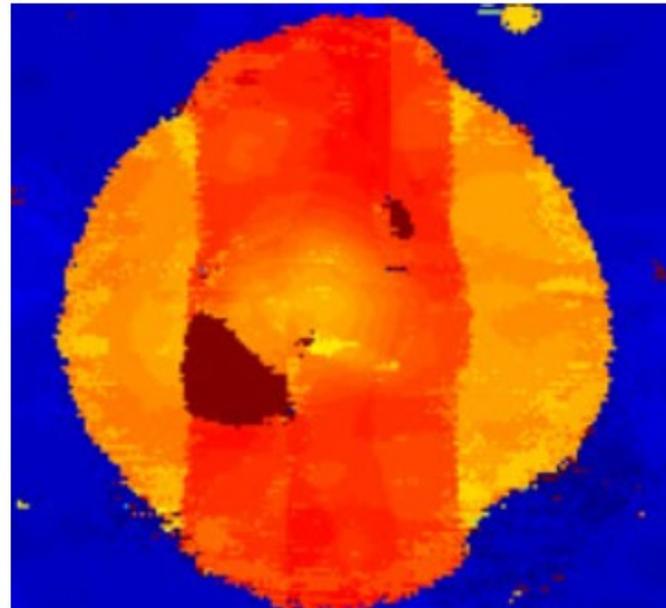
# Planar Delamination Growth Testing



PhD Thesis Wenjie Tu (2025)

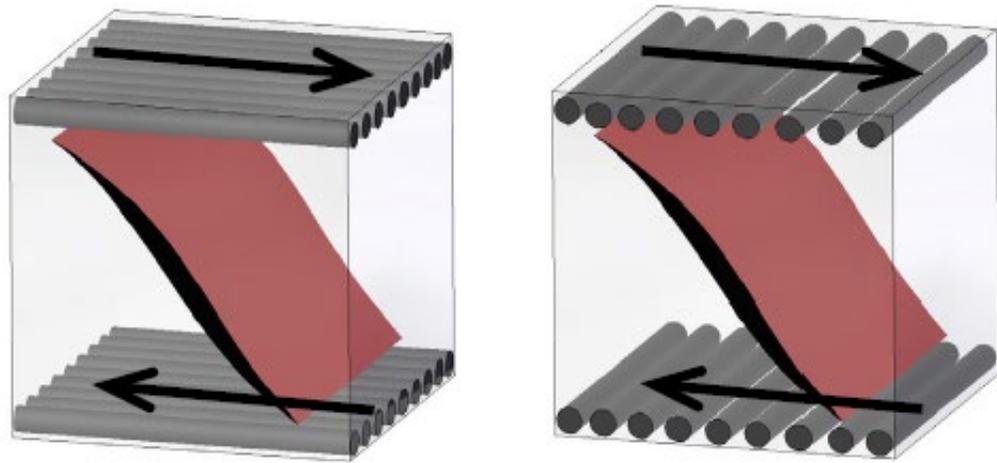
# Typical Delamination Pattern

PhD Thesis Wenjie Tu (2025)



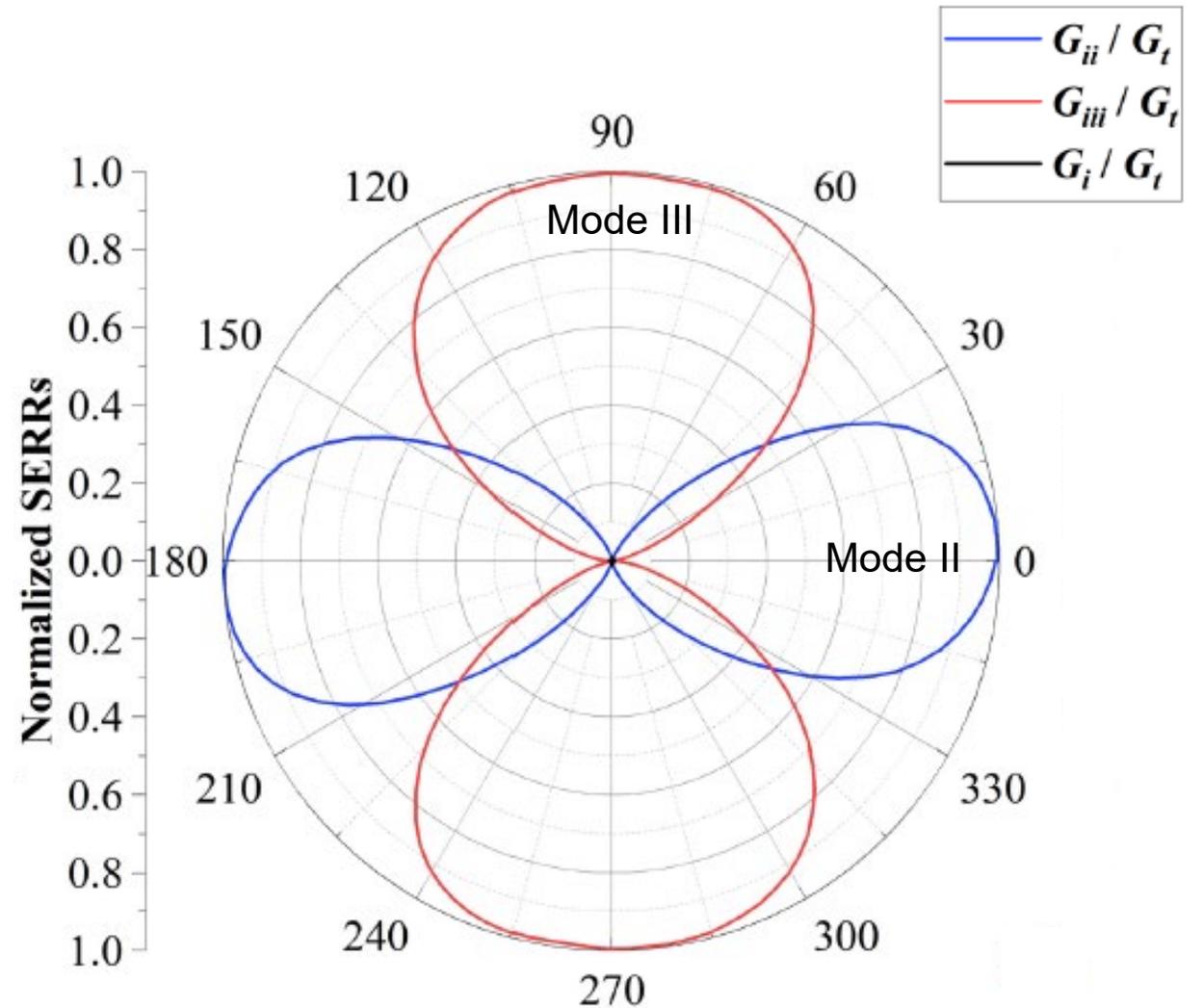
# SERR Distribution

VCCT calculation at insert front  
0//0 interface

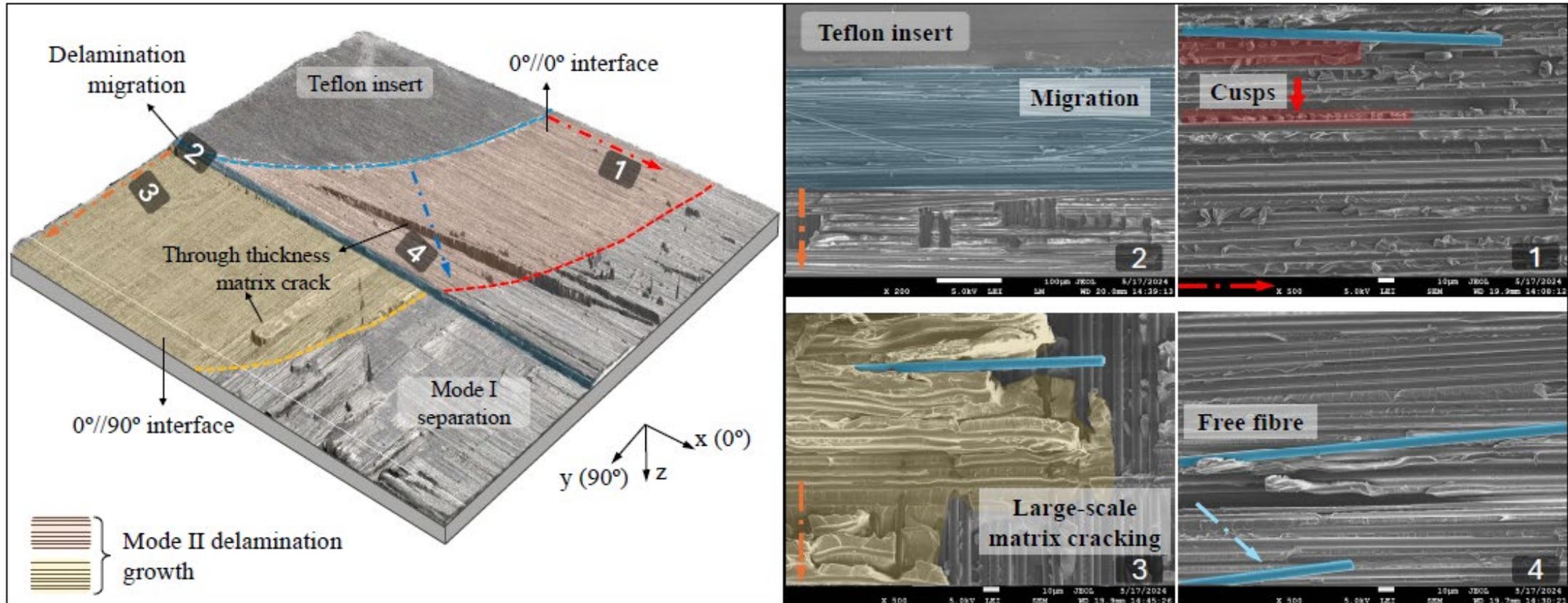


Mode II

Mode III



# Fractography



Matrix cracking / abortive migration(?) in mixed mode II/III region

# Conclusions

- Immediate migration to blocking fibres
  - Fibres parallel to delamination growth
- Pure mode III region (pre-migration)
- Mixed mode II/III region (higher delamination resistance?)

# Further reading

- Tu, Pascoe, & Alderliesten (2024), Planar delamination behaviour of CFRP panels under quasi-static out-of-plane loading, Composite Structures, 339, 118137, <https://doi.org/10.1016/j.compstruct.2024.118137>
- Tu, Pascoe, & Alderliesten (2025), Comparison of mode II delamination behaviours in multidirectional and unidirectional composite laminates, Composites Part B 291, 111941, <https://doi.org/10.1016/j.compositesb.2024.111941>
- Tu (2025) Planar Delamination Behaviour of CFRP Composite Laminates, <https://doi.org/10.4233/uuid:c34d2f83-95fc-4bd0-8919-f1a65b324302>
- D-STANDART Dataset: <https://doi.org/10.5281/zenodo.15049770>

# Questions / Discussion

John-Alan Pascoe | [j.a.pascoe@tudelft.nl](mailto:j.a.pascoe@tudelft.nl)

2-12-2025