

# XCTE

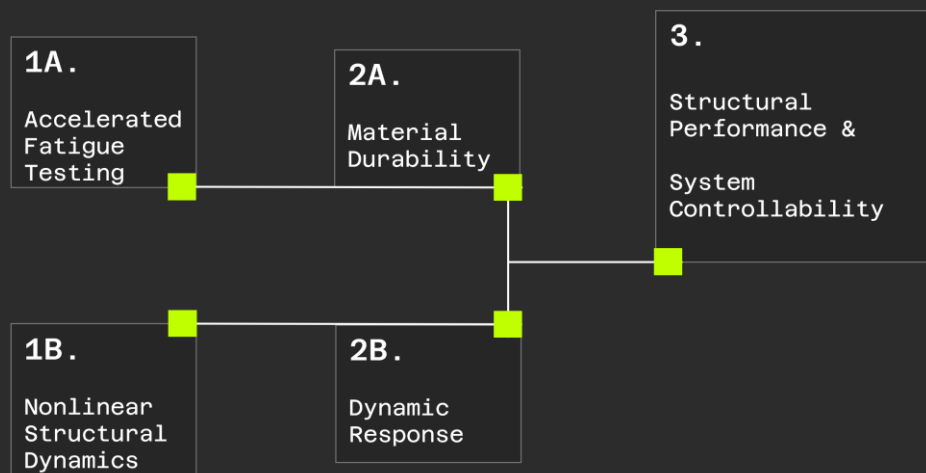
## RAPID COMPOSITE FATIGUE TESTING AND MODELLING.



**standart**  
for Durability Modelling of Composites

### XCTE's Vision & Mission

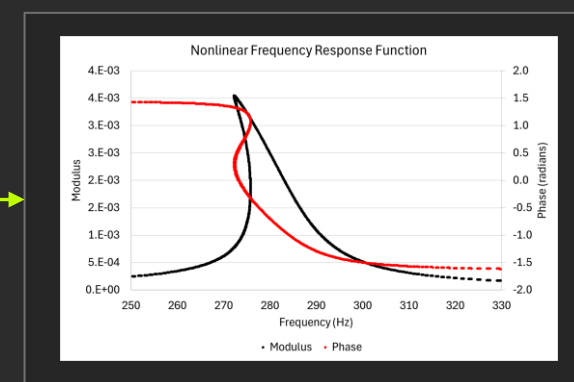
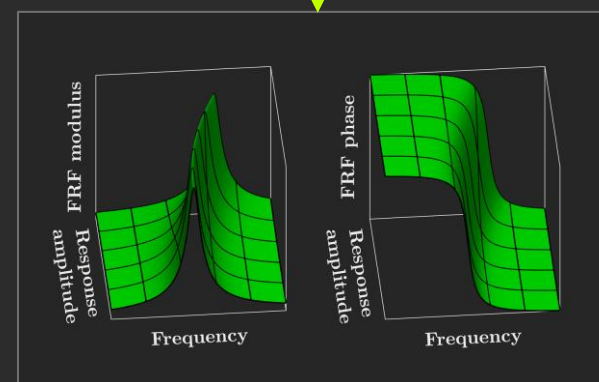
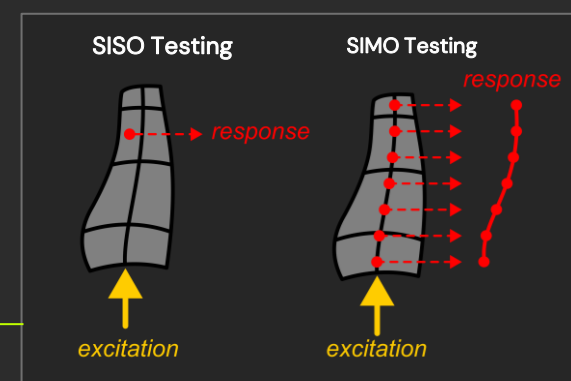
Integration of durability characterization and dynamics to achieve resilience.



### 1B. NONLINEAR STRUCTURAL DYNAMICS

XCTE Innovates through dynamics.

Nonlinear system identification technology tracks the loss of system or material performance due to accumulated fatigue damage.

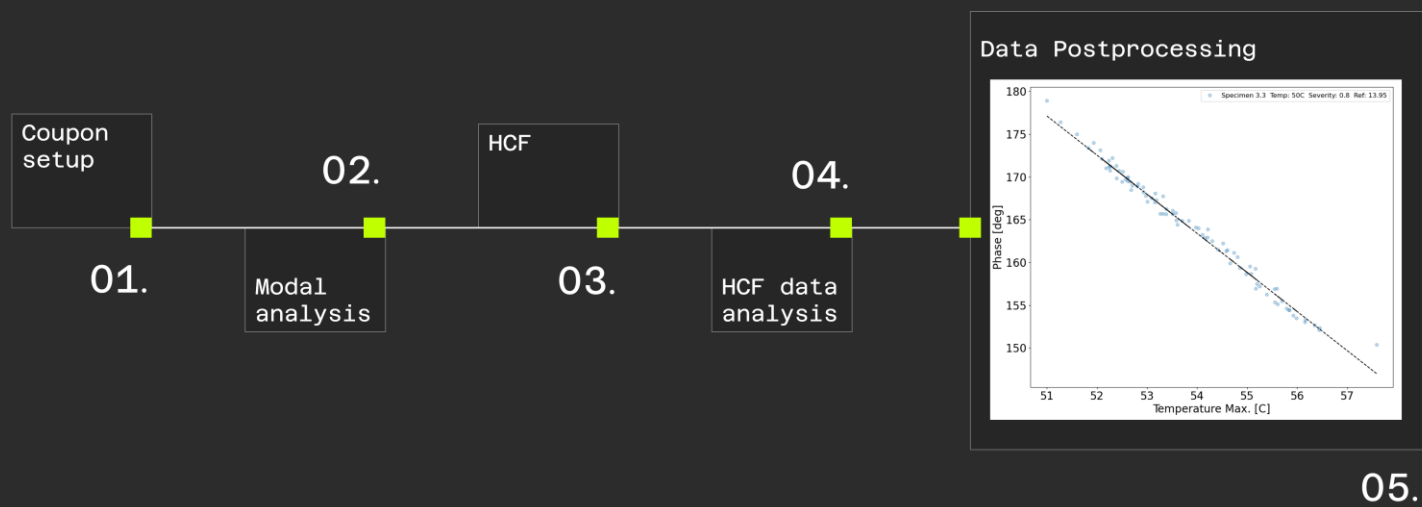
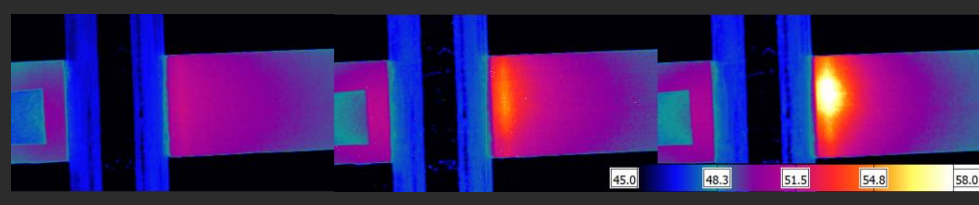
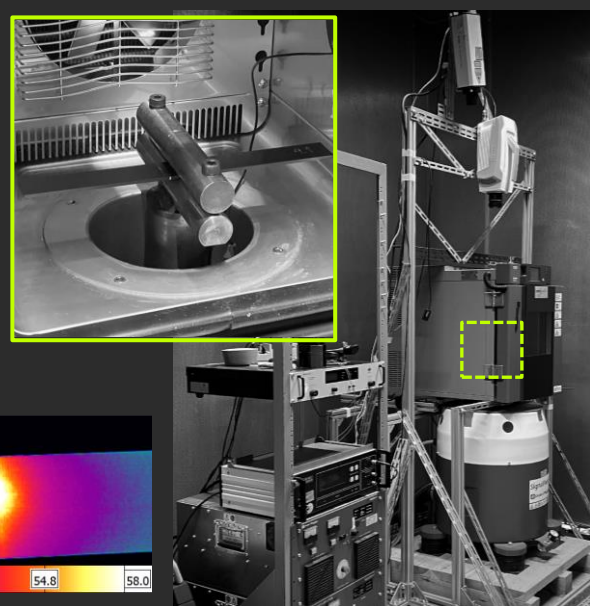


### 1A. RAPID COMPOSITE FATIGUE TESTING (HCF)

XCTE's mission is to enable shorter time-to-market of smart, sustainable and durable materials.

Accelerated fatigue testing allows extracting onset of fatigue damage in minutes.

XCTE evaluates thermo-mechanical behaviour of composite materials in hours.



### 03. APPLICATIONS

Design comparison and optimization

Material characterization and modelling

XCTE's sensitive measuring method detects damage initiation in a fraction of the time required for conventional mechanical fatigue tests.

The onset fatigue master curve is described by the loss of stiffness over cycles ( $\frac{dK_e}{dN}$ ) as a function of the input load.

XCTE technology allows generation and comparison of onset fatigue master curves from different material design thus enabling rapid design optimization.

This empirical damage model can be coded into user-material subroutines for Finite Element simulations.

Dynamic responses are simulated as a function of the nonlinear stress-strain and damage accumulation relationships



UNIVERSITY OF TWENTE



SUZLON



LET'S GET IN TOUCH!

XCTE.eu  
info@xcte.nl

# XCTE.eu

