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„Plastik“ mit Hirn

Prof Alexander Bismarck

Institut für Materialchemie & -forschung

Polymer & Composite Engineering (PaCE) Group



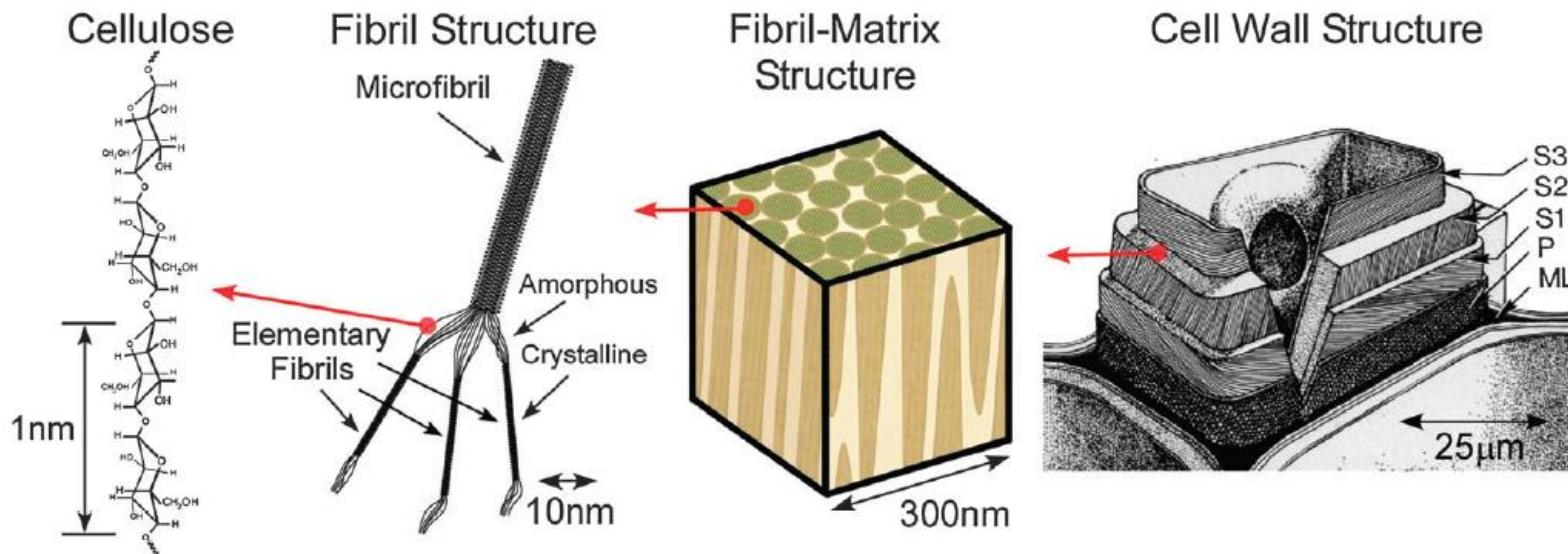
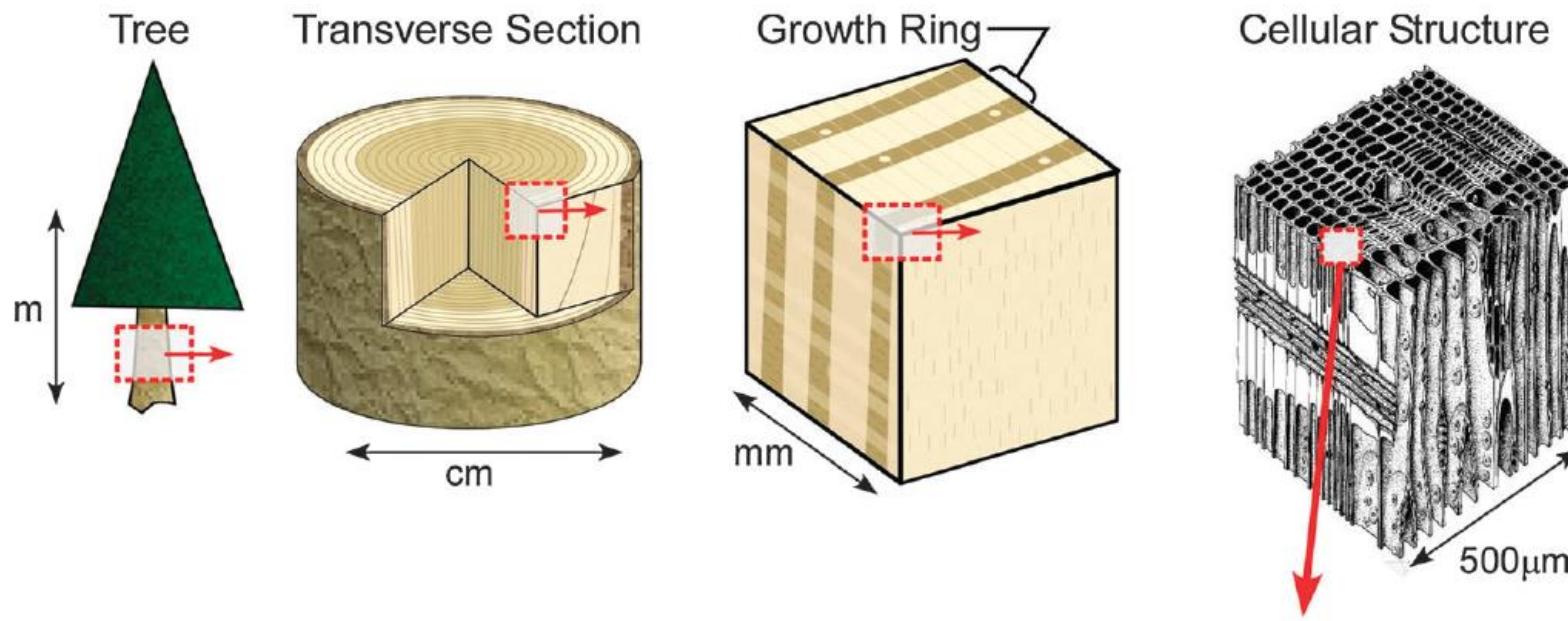


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Pappbehälter ohne Plastik

Technologietransfer – ein Beispiel aus der
Fakultät für Chemie, Universität Wien

What is cellulose?



Where do we use cellulose?





Green materials are not new!



Motor-Veteranen Dresden e.V.

Be inspired, learn from the past!

How did we start?



and now we can "dine" from it





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Imperial College
London

"Plastik" mit Hirn

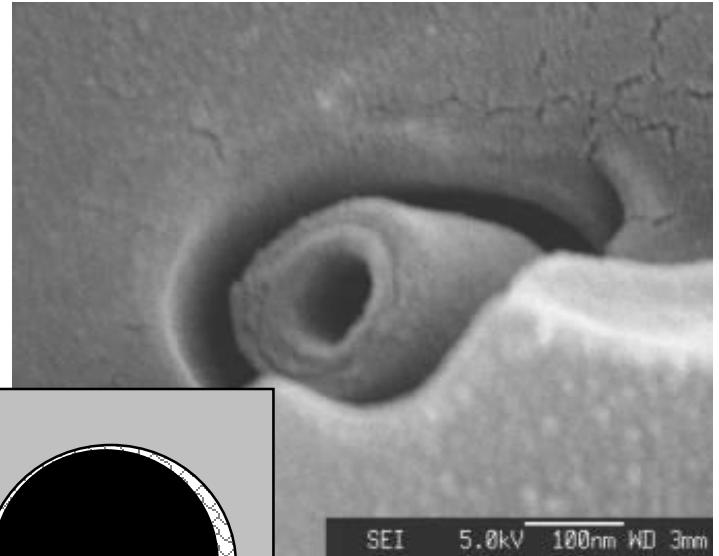
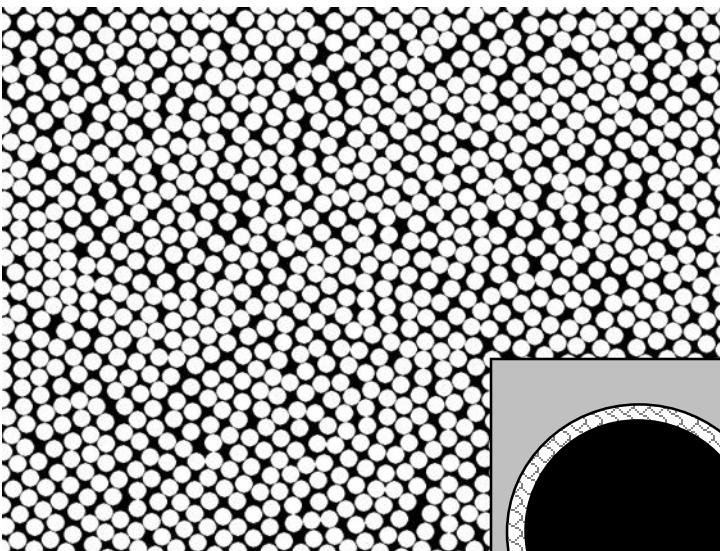
Composites with controllable stiffness

Paul Robinson and Alexander Bismarck

The Composites Centre

for research, modelling, testing and training in advanced composites

What are composites?



Fibre

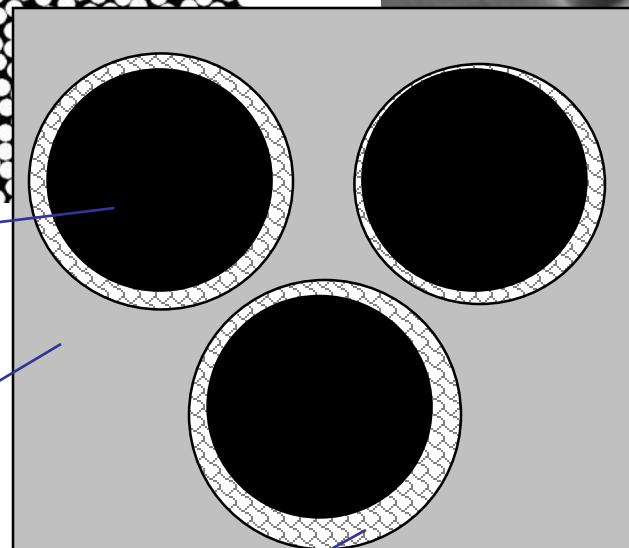
parallel strength,
E-modulus

Matrix

transverse strength, HT-properties

Interphase

adhesion, load transfer, damage resistance &
overall performance

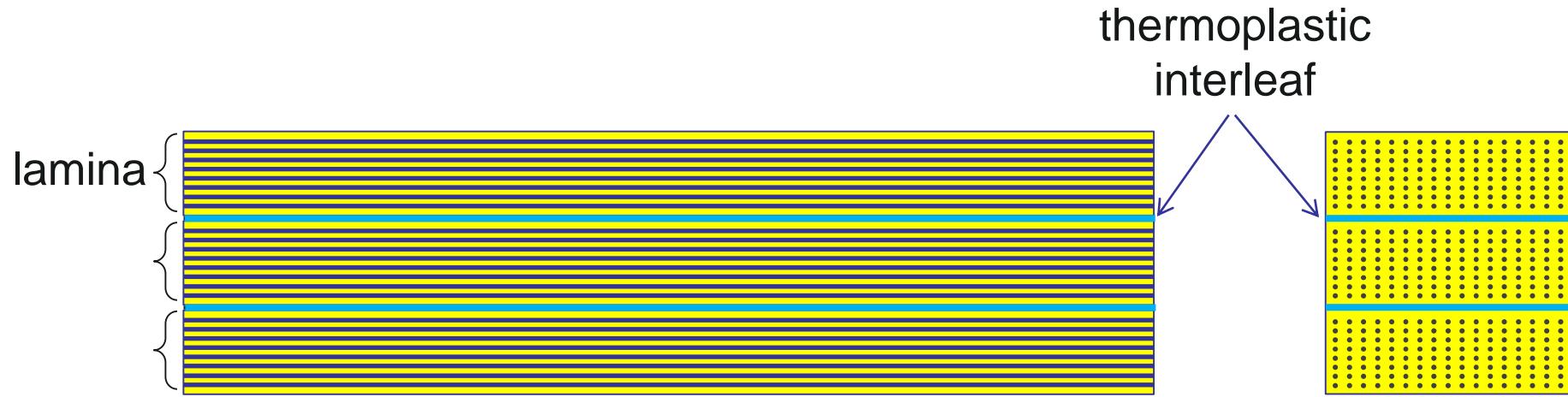


Why composites with controllable stiffness?

For pedestrian protection



Interleaf concept for controllable stiffness

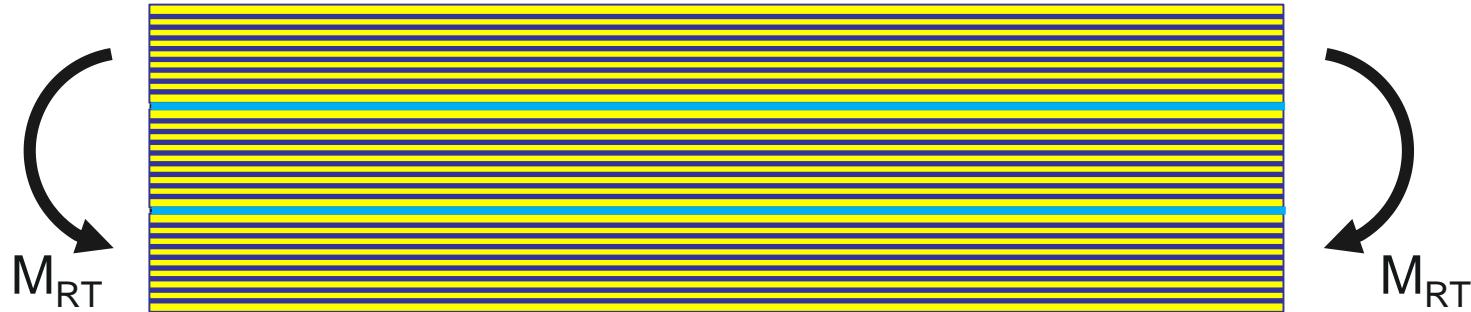


where

$$T_{\text{Service}} < Tg_{\text{thermo}} < Tg_{\text{matrix}}$$

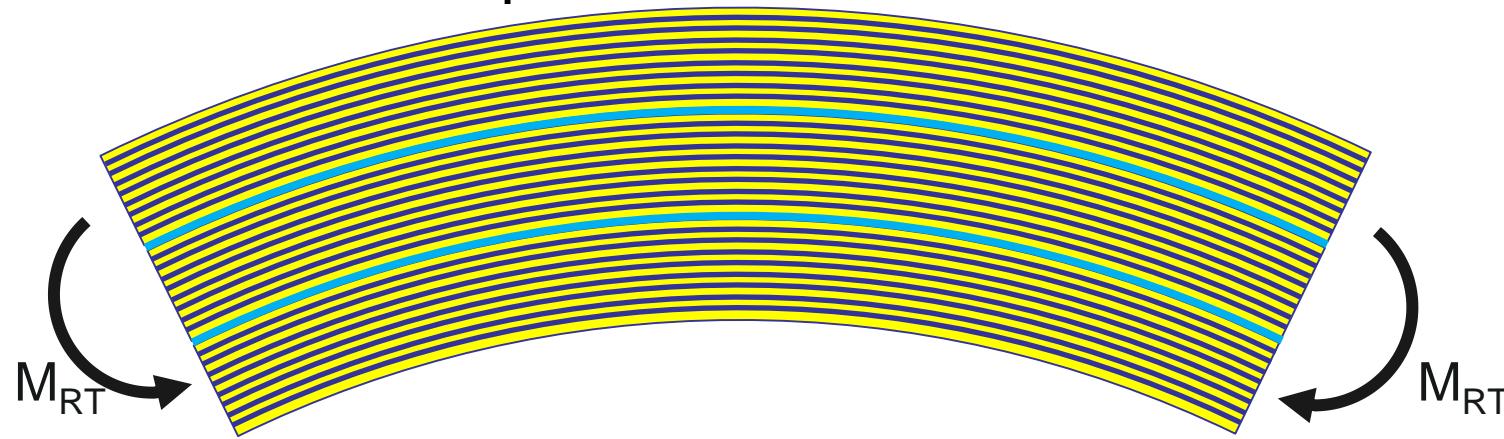
Interleaf concept for controllable stiffness

At room temperature

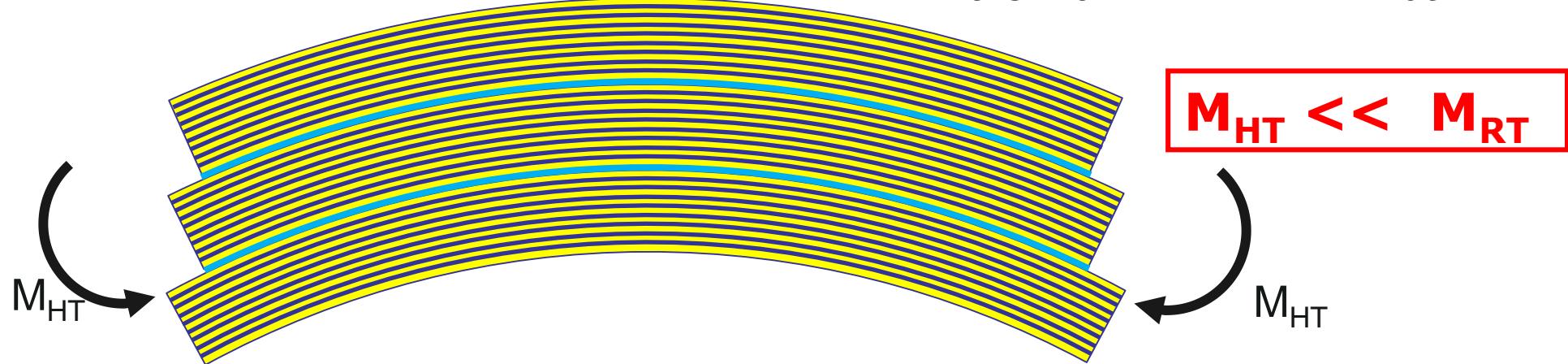


Interleaf concept for controllable stiffness

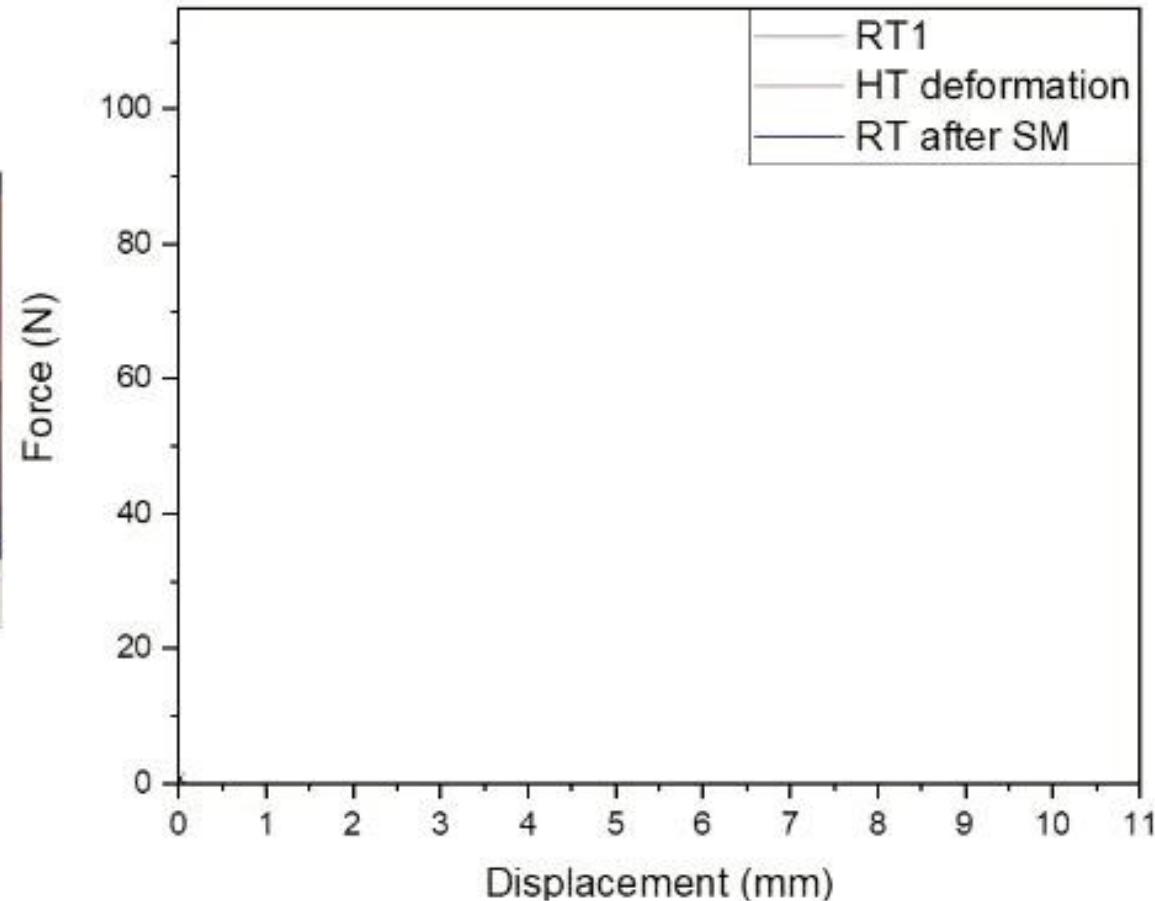
At room temperature



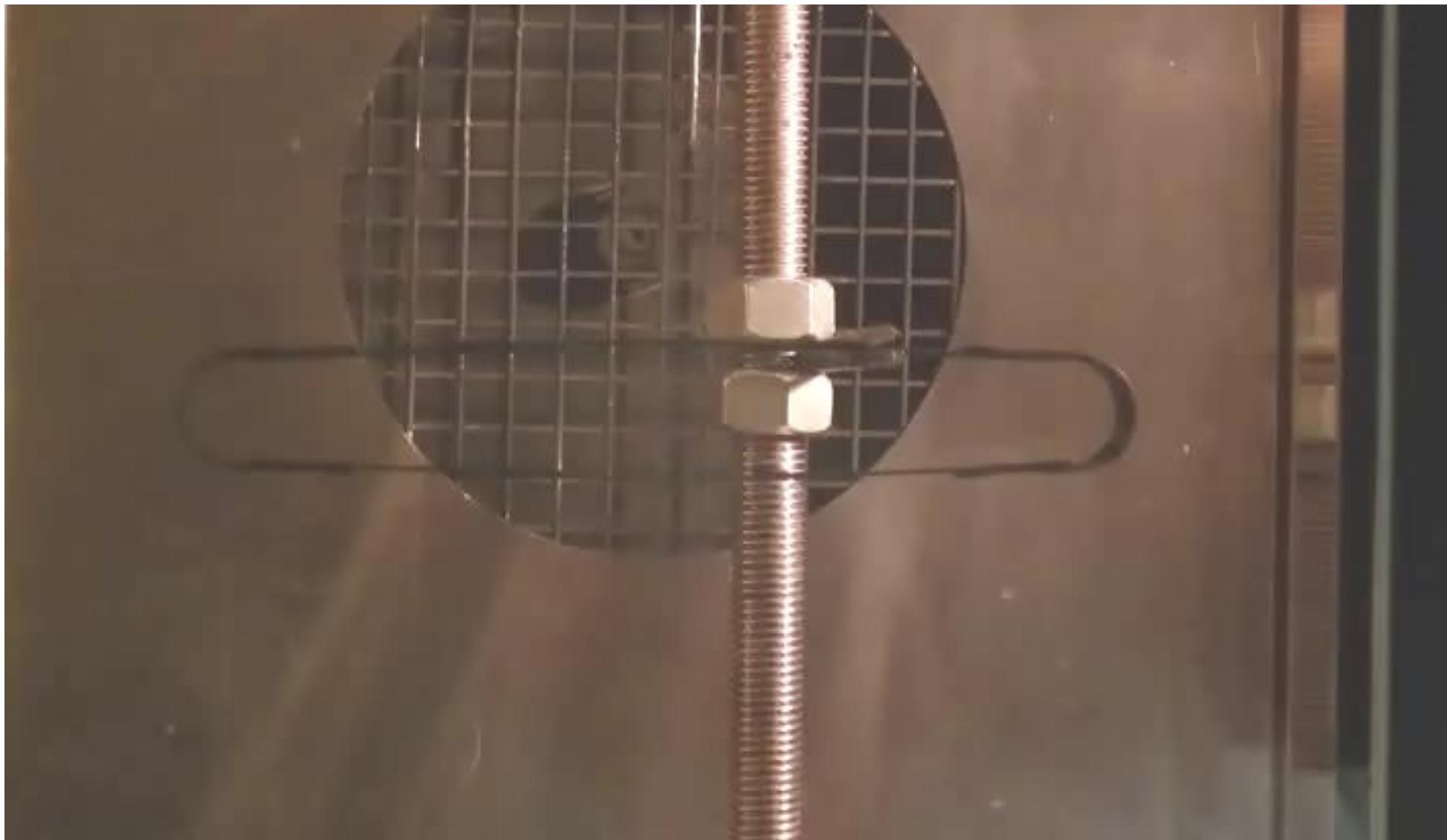
At high temperature (where $Tg_{thermo} < HT < Tg_{matrix}$)



Composites with controllable stiffness!



Deployable box section



Thank you!



Engineering and Physical Sciences
Research Council



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Innovation and
Technology Commission



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