



VIRTUAL TESTING OF COMPOSITE MATERIALS

Lead by e-Xstream engineering

(NMBP-09-2018 - Accelerating the uptake of material modelling software)

Today State-of-The-Art multi-scale material models for composite failure exist in RTO/SME but are not yet linked to industrial level modeling software. They are usually not integrated with process modelling nor with tools allowing to automatically perform virtual test campaigns. The objective of the project is thus to perform that integration, and the industrialization of the resulting modeling chain, allowing to increase the use of virtual testing in industry.



Objectives :

Improve virtual testing of CFRP materials by :

- Using state-of-the-art multi-scale material models
- Enriching link with process modeling (model material as produced - effects of defects, residual stresses, ...)
- Including material, process and testing variability.
- Automating model parameter identification and virtual test campaign.

Apply the methodology on coupons, sub-components & components.

Target thermosets & thermoplastics as well as UD and woven fiber architectures.



The European Materials Modelling Council

Innovation

- Extend and mature multi-scale material models for composite failure that have proven track-records in RTOs.
- Connect these models with process modeling.
- Insert these models in a stochastic modeling chain dedicated to virtual testing.
- Adapt and validate the resulting software on material systems and tests cases defined by an industrial end-user.

Main impact

- Increase virtual testing as a complement to physical testing in the industry allowing faster material and product developments.





The European Materials Modelling Council

Consortium (as today)

- Models providers (participation almost secured)
- Industrial modeling software (participation is secured)
- Experimental testing (participation almost secured)
- End-users (under discussion)

Looking for

- Any additional partners that could add value to the proposal.
- Interested end-users.

Contact

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