

## Seminar im Rahmen des GRK 2078

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Referent: **dr. ir. E.A.D. Lamers**  
Reden BV, Hengelo, The Netherlands

Datum: Do., 11.02.2016  
Uhrzeit: 15:45-17:15 Uhr  
Ort: Geb. 10.81, HS 62 (R 153)

Titel: **Microstructural modelling of complex shaped composite products**

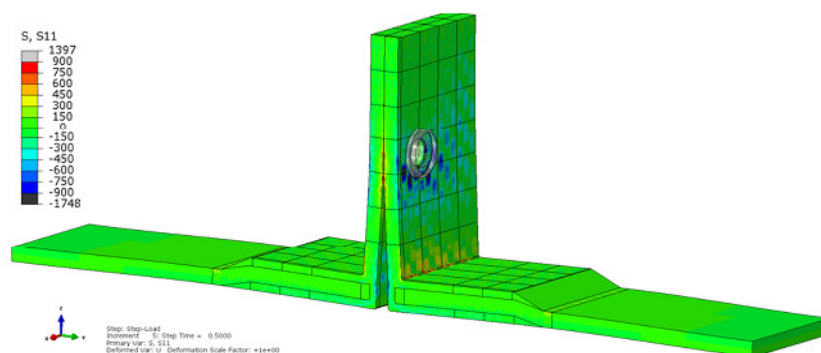
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### Abstract

Transport industries look for CO<sub>2</sub> impact reduction of their vehicles driven by the future environmental standards. A way to reach this goal is by replacing metallic parts by lighter composite parts. The prediction of the performance of the composite products remains a challenging task during the design process. The “micro-meso-macro” approach is often used to predict the composite products. Homogenization rules are applied to transfer results between levels. This method however reaches its limits when the homogenization rules do not apply anymore. A micro-structure based modelling method is proposed to overcome this limitation. Validation of the method is done by comparing stiffness and strength results to experimental determined properties. The performance of the structural parts is then predicted by a Finite Element simulation showing the applicability of the method.

### Acknowledgements:

This study has received the support from the European Commission through the large-scale integrating collaborative project MAPPIC 3D - number 263159-1 - and entitled: One-shot Manufacturing on large scale of 3D up graded panels and stiffeners for lightweight thermoplastic textile composite structures.



Alle Interessenten sind herzlich eingeladen.

Prof. Dr.-Ing. Thomas Böhlke