

GEO DICT

The Digital Material Laboratory

for Composites

Vision

Characterize, design, and improve short-, long- and endless-fiber reinforced plastics through fast micro-mechanical simulations.

About

Simulate mechanical material properties, permeability, and conductivity. Simplify and shorten the design and manufacturing of composites.

Benefits

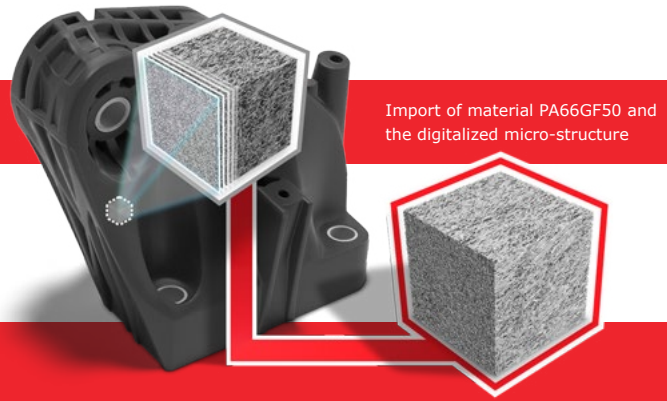
GeoDict reduces the expensive and time-consuming testing of material prototypes and provides you an insight into the micro-mechanics of your composite.



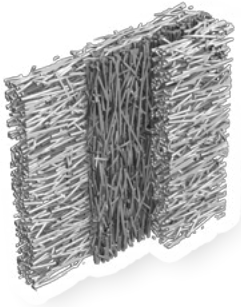
MATH
2 MARKET

Digitalization

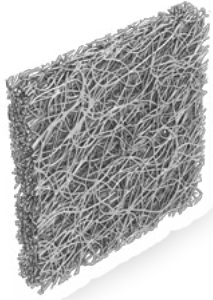
- Import the material as 3D image (e.g. μ CT)
- Design the micro-structure model



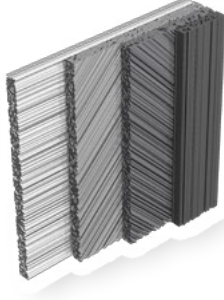
Micro-Structure Design



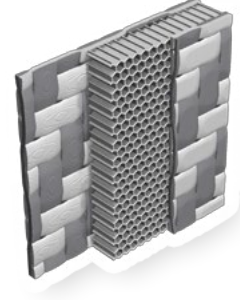
Short/long-fiber composites



Nonwoven and woven fabrics



Laminates

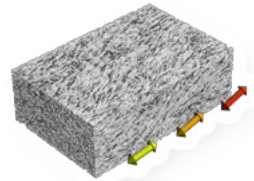


Sandwich structures

Material Analysis

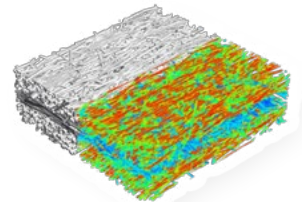
Geometrical Analysis with **FiberGuess**

- Perform fiber orientation analysis
- Determine the fiber diameter distribution
- Calculate the fiber volume fraction



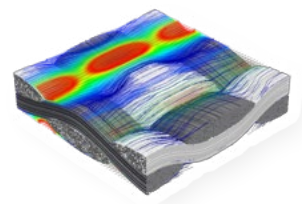
Mechanical Simulation with **ElastoDict**

- Calculate stiffness tensor, failure, and strength
- Define and include your own material models (UMAT)
- Interface to other CAE software
- Determine the effective thermal expansion tensor



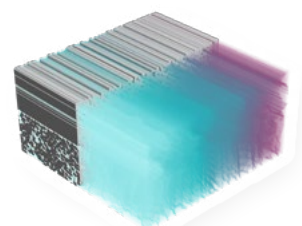
Flow Simulation with **FlowDict**

- Calculate direction-dependent permeability
- Study the impact on permeability of changes in e.g. fiber volume fraction or injection pressure



Conductivity Simulation with **ConductoDict**

- Determine the effective electrical conductivity
- Calculate the effective thermal conductivity



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