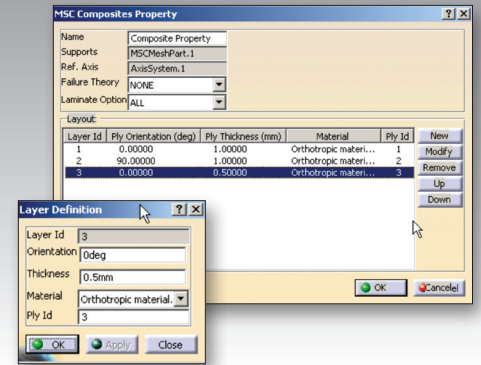


# SimDesigner Composites Add-on Module

## Laminate Composite Structures Modeling for SimDesigner Workbench Edition

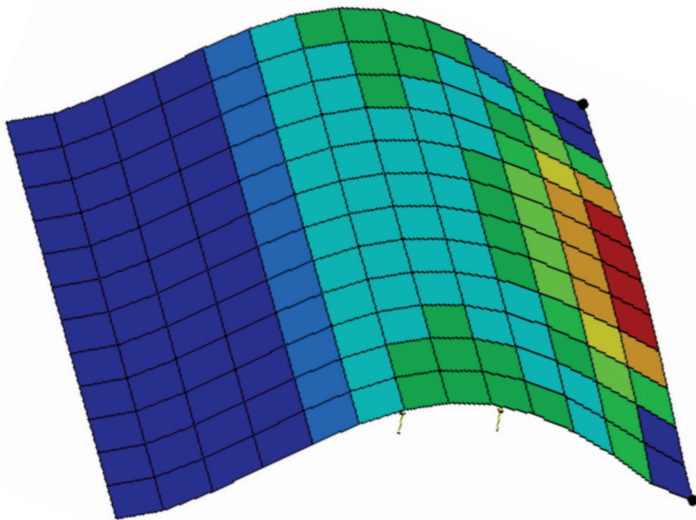


### Overview

SimDesigner Composites Add-on Module integrates with SimDesigner Workbench Edition, and enables companies to perform conceptual studies of laminate composite structures from within the SimDesigner Structures workbench.

### Develop Stronger, Stiffer & Light Structures

The use of composites materials is increasing in all industry sectors including aerospace, automotive, transportation, shipbuilding, commercial products, and consumer electronics. Composite materials allow the ability to develop stronger, stiffer, and lighter structures, but can present significant modeling and analysis challenges that make parts more difficult and expensive to design and manufacture.



### Immediate Insight into Parts Made of Composite Materials

Use of SimDesigner Composites early in the product development cycle, engineers can apply composite or laminate material properties to their designs including fiber orientation and lamina thickness for each FEM layer in the composite lay-up in order to predict failure criteria. This seamlessly integrated application will provide design engineers with a robust tool to gain immediate insight into the performance of structures utilizing composite materials.

### Additional Product Features

- Define composite definition and orthotropic material properties on shell elements
- Apply composite properties to CATIA Mesh Parts or Element Groups.

### Material Definition

- Define interactively, or import from text file
- Ability to include failure criteria or stress/strain allowables

### Capabilities

- Build laminated composite structures within Structures Workbench of SimDesigner Workbench Edition.
- Definition of orthotropic material and FEA properties.
- Laminate property definition for zones on CATIA MeshParts
- Specify the laminate characteristics such as material properties, fiber orientation, and thickness of each lamina in the composite lay-up.
- Utilize the power of MD Nastran to accurately predict ply-based stresses and strains.

### Benefits

- Earlier prediction of your design behavior prior to physical testing
- Increase competitiveness with stronger, stiffer, and lighter products.
- Accurately model and optimize the utilization of composite materials.
- Leverage your CATIA V5 and SimDesigner Workbench Edition investment.

## Composite Properties

- Define fiber orientation, thickness, layer stack up, failure theories, laminate options and ply IDs
- Extract composite properties from CATIA Composite Part Design.

## Computation & Results

- Uses MD Nastran to accurately predict ply-based stresses and strains
- Interlaminar shear stresses and strains can easily be processed with Structures Workbench

## System Requirements

- SimDesigner Workbench Edition for CATIA V5 – Complete or FEA package
- CATIA V5 with Generative Part Structural Analysis 2 (GPS)
- Recommended CATIA products for increased FEA functionality include Generative Assembly Structural Analysis 2 (GAS), FEM Surface 2 (FMS)
- Supported on Windows 32-bit & 64-bit and AIX 32-bit platforms

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