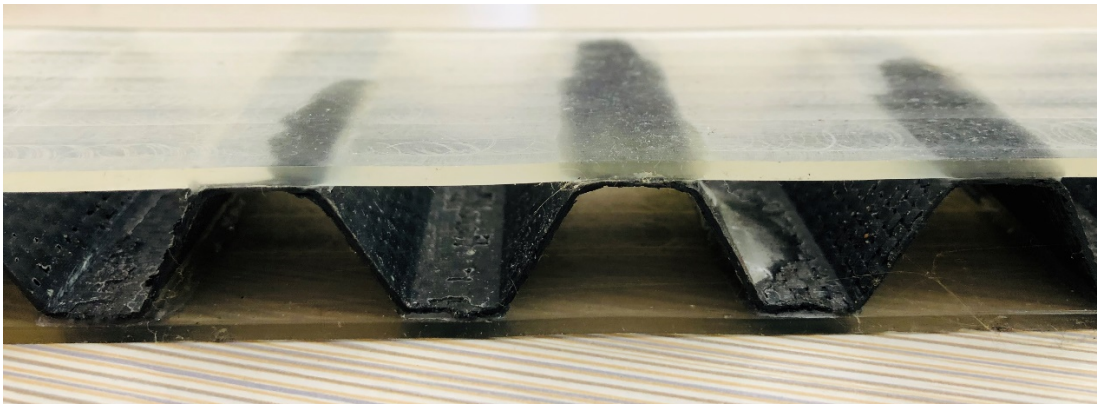


NEWS RELEASE

October 13, 2020

Dalian University of Technology Uses SwiftComp Software for Morphing Honeycomb and Corrugated Sandwich Structures

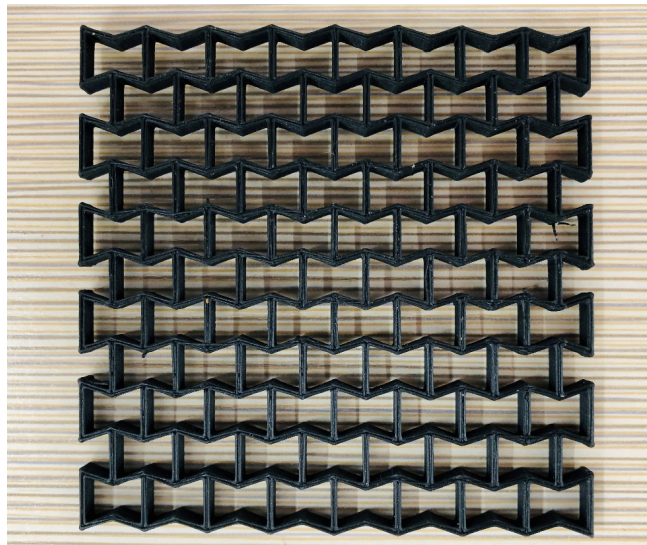


West Jordan, Utah (USA) - [AnalySwift, LLC](#), a provider of efficient high-fidelity modeling software for composites, announced today that Dalian University of Technology is participating in its recently launched Academic Partner Program (APP), and it is using its SwiftComp and VABS simulation software for researching composite structures. The work is part of a project related to composite material structure design and processing technology under the direction of professor Shiyong Sun in the School of Mechanical Engineering at Dalian University of Technology. The research efforts are part of the Key Laboratory for Precision and Non-traditional Machining Technology of Ministry of Education, which focuses on mechanical manufacturing and automation, as well as mechanical engineering and instrument science and technology.

“SwiftComp and mechanics of structure genome (the theory on which SwiftComp is based) are used to calculate the effective mechanical properties of honeycomb structures and corrugated sandwich structures,” said Fei Gao, graduate student at Dalian University of Technology. “The research goal of the project takes the composite flexible morphing structure as the research object. Aiming at the requirements of large deformation, smoothness and continuous

and high load-bearing of the morphing structure, the equivalent performance of the morphing structure based on the structural genome in SwiftComp is established from multiple levels such as equivalent performance modeling, morphing structure design, performance evaluation, design method application, and optimal design of typical configurations under model and manufacturing constraints. Also, we will study the deformation coordination relationship between the flexible hyper-elastic skin and the substructure.”

“The advantages of structure genome include highly accurate calculation results and high calculation efficiency, compared with other software or plugins used for calculating effective mechanical properties,” continued Mr. Gao.



Honeycomb composite structure designed at Dalian University of Technology and analyzed using SwiftComp.

The Academic Partner Program (APP) offers participating universities no-cost licenses of engineering software programs VABS and SwiftComp so students, researchers, and faculty can leverage the tools in their academic research. It also affords students an additional avenue to highlight their research. A robust community of users helps answer questions through the online cdmHUB (composite design & manufacturing HUB) platform.

AnalySwift’s SwiftComp and VABS enable highly efficient, yet accurate modeling of composite structures and materials. [SwiftComp](#), for instance, is a general-purpose multiscale modeling code that enables users to perform efficient and accurate modeling of composites. It provides unified modeling for various types of structures including 1D (beams), 2D (plates/shells), woven, and 3D structures. The [VABS program](#) is a general-purpose cross-sectional analysis tool for computing beam properties and recovering 3D stresses and strains of

slender composite structures. It is a powerful tool for modeling composite helicopter and wind turbine rotor blades, as well as other slender composite structures, such as propellers, landing gear, and high-aspect ratio wings.

“We are excited by the work being done by the Dalian University of Technology and pleased they have selected SwiftComp and VABS for their simulation of composite structures,” said Allan Wood, president & CEO of AnalySwift. “As versatile simulation tools for composites, they save orders of magnitude in computing time without a loss of accuracy so engineers can consider more design options and arrive at the best solution more quickly.”

“SwiftComp is a general-purpose, truly multiscale modeling code for composites. It directly and seamlessly links detailed microstructure and structural behavior for composite structures including beams, plates/shells, and 3D structures,” said Dr. Wenbin Yu, CTO of AnalySwift. “It can be used either independently as a tool for virtual testing of composites or as a plugin to power conventional finite element analysis (FEA) codes with high-fidelity multiscale modeling for composites. It saves hours in computing time and resources with accuracy comparable to modeling all the microstructural details using 3D FEA. SwiftComp quickly calculates the complete set of effective properties needed for use in macroscopic structural analysis. It can also predict accurate local stresses and strains in the microstructure for the purpose of predicting strengths, as well as thermal expansion of composites.”

“The VABS program is a uniquely powerful tool for modeling composite blades, high aspect ratio wings, and other slender structures, commonly called beams,” continued Dr. Yu. “VABS reduces analysis time from hours to seconds by quickly and easily achieving the accuracy of detailed 3D FEA with the efficiency of simple engineering models. With VABS, engineers can calculate the most accurate, complete set of sectional properties such as torsional stiffness, shear stiffness, shear center for composite beams made with arbitrary cross-section and arbitrary material. It can also predict accurate detailed stress distribution for composite beams, which are usually not possible with 3D FEA for realistic composite structures.”

About AnalySwift

AnalySwift, LLC is a provider of composite simulation software, which enables an unprecedented combination of efficiency and accuracy, including multiphysics structural analysis and micromechanics modeling. Drawing on cutting edge university technology,



AnalySwift's powerful solutions provide customers a competitive advantage through drastic reductions in engineering time, virtual testing earlier in the design process, and handling of more complex composite structures. The company's technologies deliver the accuracy of detailed 3D FEA at the efficiency of simple engineering models, cutting analysis time by orders of magnitude. SwiftComp is licensed from Purdue Research Foundation. VABS is licensed from Utah State University, Georgia Institute of Technology, and Purdue University. Find out more at analyswift.com.

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