



FOR IMMEDIATE RELEASE

Beijing Institute of Technology Leverages SwiftComp for Modeling Advanced Composite Materials

West Jordan, Utah (USA), June 3, 2019- [AnalySwift, LLC](#), a provider of efficient high-fidelity modeling software for composites, announced today that Beijing Institute of Technology is using its SwiftComp simulation software for researching new composite materials as part of the company's recently launched Academic Partner Program. The university's projects will employ AnalySwift's SwiftComp software in the simulation of 2D woven fiber-reinforced polymer-based, ceramic-based, and sandwich structure composites at elevated temperatures.

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

[SwiftComp™](#) is a general-purpose multiscale modeling code that enables users to perform efficient and accurate modeling of composites and other advanced materials. 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. SwiftComp directly and seamlessly links detailed microstructure and structural behavior for composite structures including beams, plates/shells, and 3D structures. Broad applications include [high strain composites in deployable space structures](#), [PCBs](#), [high-end fishing rods](#), woven, honeycomb sandwich structures, and many more.

"We are excited by the work being done by Beijing Institute of Technology (BIT) on these innovative materials and pleased they have selected SwiftComp as part of their composites modeling workflow," said Allan Wood, president & CEO of AnalySwift. "In addition to several unique modeling capabilities, SwiftComp helps engineers consider more design options and arrive at the best solution more quickly."

"BIT's overall research program in this area is to identify the constitutive parameters, relationships, and damage evolution of the polymer-based or ceramic-based composites using some new techniques given by the experimental mechanics," said Dr. Liu Liu, associate professor in the School of Aerospace Engineering at Beijing Institute of Technology. "SwiftComp is a powerful tool to help us efficiently understand the mechanism observed from the experiments and a user-friendly software for



engineers and researchers in the composite mechanics-related areas. Furthermore, some new functions such as the polymer-matrix dominated nonlinear mechanical response and the homogenization and dehomogenization for thick plates are expected to be included in the next released package.”

Real-world applications for the research being done at BIT include fiber-reinforced epoxy resin composites, 2D plain-woven fiber-reinforced ceramic-based composites, and sandwich structures used as part of a thermal protection system.

“SwiftComp saves hours in computing time and resources with accuracy comparable to modeling all the microstructural details using 3D FEA,” said Dr. Wenbin Yu, CTO of AnalySwift. “It quickly calculates the complete set of effective properties needed for use in macroscopic structural analysis. SwiftComp can also predict accurate local stresses and strains in the microstructure for the purpose of predicting strengths, as well as thermal expansion of composites. It also has initial failure analysis capabilities, including predicting pointwise failure strengths distributions, failure envelopes, and effective failure strength for the composite. The program interfaces with ANSYS, ABAQUS, NASTRAN, and TexGen.”

In addition to SwiftComp, the VABS program is also available to universities through the Academic Partner Program. VABS is a general-purpose cross-sectional analysis tool for computing beam properties and recovering 3D stresses/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.

About AnalySwift

AnalySwift, LLC is a provider of composite simulation software, which enables an unprecedented combination of efficiency and accuracy, including multiphysics structural 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. Our 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, and Georgia Institute of Technology. AnalySwift is a member of [the Institute for Advanced Composites Manufacturing Innovation \(IACMI\)](#). Find out more at analyswift.com.

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