

AnalySwift Announces Newest Version of First Truly General-Purpose Micromechanics Program for Composites and Other Heterogeneous Materials

Logan, Utah (USA), March 5, 2012- [AnalySwift, LLC](#), a leading provider of efficient high-fidelity modeling software for aerospace and energy composites and other advanced materials, announced today the release of the newest version of the dramatically different general-purpose micromechanics code, SwiftComp Micromechanics 3.0. This is the latest version of SwiftComp Micromechanics, also known as VAMUCH, which is a versatile micromechanics tool capable of saving users orders of magnitude in engineering time for heterogeneous structures and materials, particularly composites.

According to Dr. Wenbin Yu, CTO of AnalySwift, "The unique technology underlying SwiftComp Micromechanics renders it the first truly general-purpose micromechanics code, which can handle arbitrary microstructures and all the common physical properties. SwiftComp predicts the effective multiphysical properties within one analysis, as well as recovers detailed local fields."

Primary among the new features are the program's multiphysics capability. SwiftComp can be used to homogenize heterogeneous materials that have coupled or uncoupled responses to mechanical field, electric field, magnetic field, and thermal field. It not only predicts elastic, conductive, dielectric, magnetic, and diffusive properties of heterogeneous materials, but also coupled properties such as coefficients of thermal expansion, pyroelectric, pyromagnetic, piezoelectric, piezomagnetic, and/or electromagnetic properties, as well as the local fields corresponding to these multiphysical responses.

The efficiency and capacity of SwiftComp Micromechanics 3.0 has been significantly increased. For instance, it can compute much larger models with many more degrees of freedom in a more efficient way. For some large models up to one hundred times increase in efficiency is possible.

This newest version can now model Unit Cells (UCs) with curved edges or surfaces and also relax the restriction that the origin of the coordinate must be at the UC center. Furthermore, it can also model temperature-dependent materials with or without assuming small temperature variations. For example, a single run can generate a series of temperature-dependent effective properties.

Dr. Yu explains that, "SwiftComp calculates effective properties and local fields directly with the same accuracy as the fluctuating functions. No postprocessing calculations are needed for SwiftComp, which are indispensable for FEA-based approaches but introduce more approximations, such as averaging stress or strain fields." Dr. Yu continues, "An interface between SwiftComp and ANSYS is also available for taking advantage of the powerful preprocessing and postprocessing capability of ANSYS."

According to Allan Wood, President & CEO of AnalySwift, "Although SwiftComp Micromechanics is as versatile as a finite element analysis (FEA)-based micromechanics approach, it is more efficient and convenient for the users. It can greatly increase the quality of products by achieving the best possible accuracy."

The newly released SwiftComp Micromechanics 3.0 is freely available through the AnalySwift website at www.analyswift.com.

About AnalySwift

AnalySwift, LLC, is a leading provider of efficient high-fidelity design and analysis software for composite materials and structures, particularly cutting-edge technology for structural modeling and



micromechanics modeling. AnalySwift's revolutionary solutions are based on a powerful mathematical approach, providing customers a competitive advantage through dramatic reductions in engineering time, without sacrificing accuracy in multiphysics modeling. Utilizing technology licensed from Utah State University, AnalySwift offers the best compromise between efficiency, accuracy, and versatility for multiphysics analysis of composite materials and structures. The technology has been supported, in part, by US National Science Foundation, US Army, US Air Force, Utah Science Technology and Research Initiative (USTAR), and industry. More information about AnalySwift can be found on the web at www.analyswift.com. For more information, contact Allan Wood, President and CEO of AnalySwift, 801-599-5879 or email allanwood@analyswift.com.