



University of Hawai`i at Mānoa

Hawai`i Natural Energy Institute

School of Ocean & Earth Science & Technology

Introduction to Modelica for Physical System Simulation

This presentation will introduce the Modelica Language as used in the Dymola Modeling Laboratory and demonstrate its capabilities through an example of a fuel cell model. Modelica is one of many modeling tools, including the ubiquitous Matlab/Simulink tools. However, Modelica takes a fundamentally unique approach to the representation of physical systems. Models are easier to formulate mathematically, more reusable, and more robust. Modelica is gaining recognition for the simulation of multi-domain systems (electrical, mechanical, electrochemical, thermodynamic, etc.) within the automotive and power industries, among others, as well as research institutions. In our fuel cell systems Hardware-in-the-Loop work at HNEI, Modelica is enabling us to create more physically representative models without the algebraic loops encountered in Simulink.

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Tuesday, November 28, 2006

3:15 – 4:15 PM

HIG Auditorium, Room 110

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