

APS Scientific Computation Seminar Series

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Title: The Extensible GenApp Framework for Rapid Deployment of Multi-Scale Scientific Codes

Date: Monday, November 2, 2015

Time: 11:00 a.m.

Location: 401/A1100

Hosts: Nicholas Schwarz and Brian Toby

Abstract:

GenApp generates applications on an extensible set of target languages for scientific modules. GenApp utilizes JSON format for all definition files. To create an application, definition files are created for global directives, menu and modules. Target languages have definition files detailing the steps mapping code fragments to output. Modules must be wrapped to accept and produce JSON as defined in the module's definition file. Execution models are not defined by GenApp, they are included in target language code fragments. GenApp currently includes target languages of HTML5/PHP, Qt3/C++ and Qt4/C++ with execution models of direct local execution, a web server, or a web server accessible resource. Recent Google Summer of Code work has added Qt5/C++ and Java target languages and has integrated Apache Airavata with GenApp for execution to managed compute resources such as those brokered through NSF/XSEDE. GenApp was initially developed to wrap modules utilized in the small angles scattering field, but is not restricted to this discipline. The GenApp philosophy is to minimize effort of the researcher to deploy modules and insure preservation in an evolving software landscape.