GEC14-2014-020036

Abstract for an Invited Paper
for the GEC14 Meeting of
the American Physical Society

What is Necessary To Succeed in V&V? Experience From The DOE ASC V&V Program

WILLIAM RIDER, Sandia National Laboratories

Verification and validation is a route toward examining the credibility and confidence in computations. These are interdependent and complementary activities that are usually combined with uncertainty quantification. Validation is usually the emphasis for most scientific endeavors being predicted upon experimental science and physical theory. Verification is similarly based upon the mathematical basis of the numerical methods. Upon this point PIC methods in particular are disadvantaged as the mathematical basis is quite weak. Nonetheless useful empirical results can be examined. A great deal of experience has been gained in the application of a systematic V&V process including uncertainty quantification. The lessons from these efforts can be applied profitably to PIC methods.