

Abstract Submitted
for the GEC12 Meeting of
The American Physical Society

Overview of Verification and Validation in Low Temperature Plasma Physics M.M. TURNER, Dublin City University, Ireland, M. VUKOVIC, Tokyo Electron Ltd, U.S.A. — Computational work has formed an essential part of low-temperature plasma physics research for many years. As in many other fields, there is a tendency towards more complex simulations, as physical models become more elaborate and computer hardware becomes more sophisticated. Inevitably, this means that computer codes have become more complex. Complex physical models combined with complex implementation leads to considerable difficulty in establishing the fidelity of simulation results, as the physical model may contain assumptions that have been inadvertently violated, and the computer code may contain implementation errors. One needs a methodology for finding such mistakes, and also distinguishing between these two categories of mistake. In modern parlance, accumulating evidence that simulation codes are correct is known as Verification, while the process of testing the physical model is called Validation. This paper will present an overview of some important modern ideas on how Verification and Validation should be carried out, and discuss the implications of these concepts for the practice of computer simulation in low-temperature plasma physics.

Miles Turner
Dublin City University, Ireland

Date submitted: 15 Jun 2012

Electronic form version 1.4