
SCS Keynote Speaker



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Presentation Title: Simulation and Modeling as the Essence of Computational Science

Presentation Abstract: Recent developments of computational methods supporting scientific research have led to the rise of a variety of computational science disciplines, such as computational physics, computational biology, computational chemistry, computational social science, and many more.

Although simulation is now widely regarded as the third pillar of science, with epistemological status comparable to formal theorizing and experimentation, the insight that computational science is as interwoven with simulation as traditional science is with modeling has not yet been sufficiently communicated. As a result, important insights from the modeling and simulation discipline are not known or ignored by traditional scientists entering the computational branch of their discipline.

This presentation contributes to closing this gap by giving examples of how modeling and simulated based research contributes to improve computational sciences, including having a look at the supporting philosophy of science perspectives.

Biography: Andreas Tolk is Technology Integrator for the Modeling, Simulation, Experimentation, and Analytics Division of the MITRE Corporation and Adjunct Professor at Old Dominion University. He holds a PhD and M.Sc. in Computer Science from the University of the Federal Armed Forces in Munich, Germany. He published more than 250 journal articles, book chapters, and conference papers and edited nine textbooks and compendia on Modeling and Simulation and Systems Engineering topics. He is a senior member of ACM and IEEE and a Fellow of SCS.