

# ***Semi-Plenary Lecture***



## **Dr. Dimitri Kusnezov**

Director, Office of Research and Development for  
National Security Science and Technology, NNSA

### ***Title: Breaching the Scales through Computational Science***

Simulation is allowing us to bridge the scales from the quantum to the continuum. While simulating trillions of particles is allowing the emergence of new approaches to analyzing complex behaviors, it is still far from where we would like it to be. There is a hope that through the transcendence of scales, new organizing principles might emerge. This could certainly help finally clarify the role of validation of complex multi-scale problems. In parallel, the development of uncertainty quantification to help with predictions of non-linear systems is increasingly important.

#### **Brief Biography:**

Dr. Kusnezov received A.B. degrees in Physics and in Pure Mathematics with highest honors from UC Berkeley. Following a year of research at the Institut für Kernphysik, KFA-Jülich, in Germany in 1983, he went to Princeton University where he completed his MS in Physics (1985) followed by a Ph.D. in Theoretical Nuclear Physics (1988). At Michigan State University, he conducted postdoctoral research and then became an instructor. In 1991, he joined the faculty of Yale University as an assistant professor in physics, becoming an associate professor in 1996. He has served as a visiting professor at numerous universities around the world. Dr. Kusnezov has published over 100 articles and a book. He joined federal service at the NNSA in late 2001 and is a member of the Senior Executive Service and is also a Visiting Researcher at Yale. He runs the Office of Research and Development for National Security Science and Technology, where he directs and oversees the science and technology programs that assure the safety and security of the nuclear weapons enterprise.