

L a u d a t i o

For his original and outstanding contributions to the computational investigation of complex nonlinear systems and its application

Prof. Dr. Ioannis G. Kevrekidis

has been awarded the
Martin-Gutzwiller-Fellowship 2010/2011
of the Max Planck Institute for the Physics of Complex Systems.

Ioannis Kevrekidis is an international leader in the development of innovative methods for the analysis of complex systems. His work has enabled discoveries with a wide range of applications from chemistry and biology.

Among his many notable works Ioannis Kevrekidis is most well known as the inventor of equation-free modeling – an approach that allows bridging the divide between equation-based and agent-based modeling and models on different scales. The equation-free framework makes it possible to apply an arsenal of powerful tools directly to microscopic, agent-based, and stochastic models, and can in some cases be applied to guide automated experiments. By the development of equation-free modeling and pioneering its application in multi-scale approaches, Ioannis Kevrekidis has paved the way for a heightened understanding of real-world complex systems.

Ioannis Kevrekidis is also well known as an excellent communicator of science and transporter of mathematical insights into applications. His restless curiosity has driven him to address challenges from many different fields, including chemical pattern formation, fluid dynamics, neuroscience, network dynamics, microbial biology, and others. His ability to develop computational strategies for tackling important problems in these fields has gained him the deep respect of a large number of prominent collaborators and has resulted in outstanding contributions. For example his work on neural circuits, noise in collective animal motion, or the dynamics of reaction waves, are besides their high scientific value, showcase examples for the power of interdisciplinary collaborations. The work of Ioannis Kevrekidis thereby stands as a beacon that continues to raise the awareness to concepts from mathematics and physics in a wide range of fields.

Ioannis Kevrekidis is a prime example of a highly productive researcher and important ambassador of interdisciplinarity in complex systems research.