

Mathematics Distinguished Colloquium Series

THE UNIVERSITY OF
TEXAS AT DALLAS

Prof Dmitry Turaev *Imperial College London*

Richness of Hamiltonian chaos

Since the time of Newton, physicists have described natural processes through differential equations. Nowadays it is commonly acknowledged that solutions to differential equations are often chaotic: a small variation in initial conditions leads to a large and unpredictable change in the behavior of the system. One should, therefore, try to describe this behavior statistically. However, we will show that a system with chaotic behavior often exhibits a variety of statistical patterns of such diversity that any attempt to comprehensively describe it will fail. We will argue that this ultimate richness is the main characteristic feature of chaos in practically any given system and show how this fact could help explain otherwise unexplained physical phenomena, like the low temperature flicker-noise in metals.

Dmitry Turaev was born in 1963 in the city of Nizhny Novgorod, Russia. He studied mathematics at the University of Nizhny Novgorod between 1980-85 and then worked at the same university as a researcher until 1996, before immigrating to Israel. He received his PhD in Mathematics in 1991 and has since held postdoc positions in Israel, Germany and US until 2003 when he became an associate professor at the Ben Gurion University of the Negev in Israel. He joined Imperial College, London, in 2009.



Dmitry is a student and long time collaborator of the late Leonid Shilnikov, one of the founding fathers of chaos theory. Dmitry's research interests include various branches of the theory of dynamical systems, in both its pure and applied dimensions; he also has works on optics and the dark matter problem. His work is well received by colleagues and he is recognized as one of the leaders of modern nonlinear dynamics research. He delivered plenary talks at major conferences on the subject, including the invited lecture at the Dynamical Systems section of the ICM-2010.

Friday July 28, 2017, 12-1pm

Room: FO 2.404 (Founders building)
University of Texas at Dallas

Pizza reception: 11:30am

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Support:

