Thematic Program on
Dynamical Systems
School of Mathematics, IPM, Tehran
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Institute for Research in Fundamental Sciences

Mini Course

Emergence and paradynamics

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Schedule:	Lecture 1: Tuesday, May 9, 2017, 11:30–13:00 Lecture 2: Thursday, May 11, 2017, 11:30–13:00
Venue:	Lecture Hall 2, IPM Niavaran Bldg., Niavaran Square, Tehran

Abstract. Recently we showed that some degenerate bifurcations can occur robustly. Such a phenomena enables ones to prove that some pathological dynamics are not negligible and even typical in the sense of Arnold-Kolmogorov. In particular, we proved:

Theorem. *For every $\infty > r \geq 1$, for every $k \geq 0$, for every manifold of dimension ≥ 2, there exists an open set $\hat{U}$ of C^r-k-parameters families of self-mappings, so that for every topologically generic family $(f_a)_a \in \hat{U}$, for every $\|a\| \leq 1$, the mapping f_a displays infinitely many sinks.*

We will introduce the concept of *Emergence* which quantifies how wild is the dynamics from the statistical viewpoint, and we will conjecture the local typicality of super-polynomial ones in the space of differentiable dynamical systems.