J. Palis

Title:

Open questions leading to a global perspective in dynamics

Abstract: We will address one of the most challenging and central problems in dynamical systems, meaning flows, diffeomophisms or, more generally, transformations, defined on a closed manifold (compact, without boundary or an interval on the real line): can we describe the behavior in the long run of typical trajectories for typical systems? Poincaré was probably the first to point in this direction and stress its importance. We shall consider finite-dimensional parameterized families of dynamics and typical will be taken in terms of Lebesgue probability both in parameter and phase spaces. We will discuss a conjecture stating that for a typical dynamical system, almost all trajectories have only finitely many choices, of (transitive) attractors, where to accumulate upon in the future. Interrelated conjectures will also be discussed.