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Research field: dynamical systems
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Current research. In the space of diffeomorphisms or vector fields as dynamical systems on a manifold, we want to explain typical phenomena which appear generically or mechanisms which the phenomena are generated. Optimistically, the goal of the study of dynamical systems is to understand almost all dynamics using fundamental properties existing generically. My current research is in the continuation of the hyperbolic theory developed in the sixties by Smale and his colleagues. Since well-understandable hyperbolicity (= stability) is not dense in the space of dynamical systems, toward the understanding of the nonhyperbolic systems, we have the so-called Palis Conjecture (hyperbolic systems or the systems exhibiting a homoclinic bifurcation form a dense subset in the space of dynamical systems) and, from the view point finding good properties in nonhyperbolic systems as well as hyperbolic ones, there is a conjecture by Palis on finitude of attractors and the stable ergodicity conjecture by Pugh and Shub. Moreover, there is the study on singular-hyperbolicity proposed as a notion including the geometric model of Lorenz attractor belonging to the domain of nonhyperbolic systems. I am interested in these studies pushing our understanding to nonhyperbolic systems.

Prerequisites. As a characteristic of the field of dynamical systems, research subjects contain vast variety because of the existence of problems relating to dynamical systems in various areas. The above direction is relatively easy to access if proper knowledge of ergodic theory and dynamical systems is obtained. In this direction, I suggest reading the following literature, and students who can be interested in these books are welcomed.
Bonatti, Diaz & Viana, Dynamics Beyond Hyperbolicity (Springer).
This book is suitable to know the recent situation, containing a lot of open problems. The following books have been already recognized as good text books. It is desirable to master fundamental parts of these books in the first year of the graduate course.
Palis & de Melo, Geometric Theory of Dynamical Systems (Springer).
Shub, Global Stability of Dynamical Systems (Springer).
Mañé, Ergodic Theory of Differentiable Dynamics (Springer).
Robinson, Dynamical Systems, Stability, Symbolic Dynamics, and Chaos (CRC).

Finally, to overlook more extent of the theory of dynamical systems, I recommend
Katok & Hasselblatt, Introduction to the Modern Theory of Dynamical Systems (Cambridge).