

***LIAO'S CANONICAL EQUATIONS AND THE
CONJECTURES OF PALIS FOR VECTOR FIELDS***

Speaker: Professor Dawei Yang
Soochow University

Time: Wednesday, December 2, 2020, 9:30-10:30

Tencent room: 568 474 948

Abstract: Palis has formulated conjectures to understand most dynamical systems. I will introduce the progress of Palis' conjectures in the case of vector fields, and I will explain how Liao's idea can be applied in some part of the proofs. This is based on the joint works with S. Gan and S. Crovisier.

ORBITAL STABILITY OF THE MODIFIED CAMASSA-HOLM EQUATION

Speaker: Professor Ji Li
Huazhong University of Science and Technology

Time: Wednesday, December 2, 2020, 10:30-11:30

Tencent room: 568 474 948

Abstract: We study the stability of smooth and peaked solitary waves to the modified Camassa-Holm equation. This quasilinear equation with cubic nonlinearity is completely integrable and arises as a model for the unidirectional propagation of shallow water waves. Based on the phase portrait analysis, we demonstrate the existence of unique localized smooth solitary-wave solution with certain range of the linear dispersive parameter. We then show orbital stability of the smooth solitary wave solution under small disturbances by means of variational methods, considering a minimization problem with an appropriate constraint. Using the variational approach with suitable conservation laws, we also establish the orbital stability of peakons in the Sobolev space $H^1 \cap W^{1,4}$ without the assumption on the positive momentum density initially. Finally we demonstrate spectral stability of such smooth solitary waves using refined spectral analysis of the linear operator corresponding to the second-order variational derivative of the local Hamiltonian.