Abstract

The Liouville-Arnold theorem states that, for integrable systems, the phase space is foliated by invariant tori, and the flow on each torus is a Kronecker flow. According to KAM theory, in a perturbed system, many of these invariant tori persist. However, with larger perturbations, the invariant tori are expected to vanish. Converse KAM theory provides a theoretical guarantee of this phenomenon. In this talk, I will discuss the existence and non-existence of invariant tori in the Henon map, billiard map, and Origami map. This work includes joint research with Y. Higashihama, H. Tateishi, and R. Ichikawa.