Abstract

In this talk, we address on the strong rigidity properties from joint integrability in the setting of Anosov diffeomorphisms on tori. More specifically, for an irreducible Anosov diffeomorphism with splitted stable bundle, the joint integrability of the strong stable and full unstable subbundles implies existence of fine dominated splitting along the weak stable subbundle as well as Lyapunov exponents rigidity. This builds an equivalence bridge between the geometric rigidity (joint integrability) and dynamical spectral rigidity (Lyapunov exponents rigidity) for Anosov diffeomorphisms on tori.

Moreover, we show that if two non-invertible Anosov maps on 2-torus are topological conjugate, then they also admit spectral rigidity along stable bundles, i.e. they have the same Lyapunov exponents on corresponding periodic points. In particular, the conjugacy is smooth along stable foliations.