Abstract

We introduce two properties: strong R-property and $C(q)$-property, describing a special way of divergence of nearby trajectories for an abstract measure preserving system. We show that systems satisfying the strong R-property are disjoint (in the sense of Furstenberg) with systems satisfying the $C(q)$-property. Moreover, we show that if u_t is a unipotent flow on G/Γ with Γ irreducible, then u_t satisfies the $C(q)$-property provided that u_t is not of the form $h_t\times\operatorname{id}$, where h_t is the classical horocycle flow. Finally, we show that the strong R-property holds for all (smooth) time changes of horocycle flows and non-trivial time changes of bounded type Heisenberg nilflows. This is joint work with A. Kanigowski and D. Wei.