Equidistribution of evolution of curves in homogeneous space under diagonal flow

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Abstract

In this talk, we consider a compact analytic curve $\varphi : I \to H = \mathrm{SO}(n, 1)$ and embed it into some homogeneous space G/Λ where $H \subset G$ and $H\Lambda$ is dense in G. Fix a maximal R-split Cartan subgroup $A = \{a_t : t \in \mathbb{R}\}$, we wonder under which condition the expanded curves $\{a_t\varphi(I) : t > 0\}$ tend to be equidistributed. It turns out that it is true if the image of $\varphi(I)$is not contained in any proper totally geodesic submanifold of H. It answers a question of Nimish Shah and extends his previous result. And then we will talk the main idea to prove the same result if we replace the analytic curve by only smooth curve, this project is ongoing and joint with Nimish Shah.