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**Osama Khalil\*** (khalil.37@osu.edu). *Divergent Trajectories and Expanding Curves on Homogeneous Spaces.*

Many problems in (intrinsic) Diophantine approximation on differentiable curves in  $\mathbb{R}^n$  can be recast in terms of the behavior of certain diagonalizable flows on appropriate homogeneous spaces. The dynamical problems that arise in this way take the following form: for a 1-parameter diagonalizable subgroup  $g_t$  and a lattice  $\Gamma$  in a Lie group  $G$ , one embeds the curve of interest into the unstable horospherical subgroup for  $g_t$ . For a certain class of such curves, we prove an upper bound on the Hausdorff dimension of the set of points along the curve whose trajectory under  $g_t$  spends 0 percent of its time in any compact subset of  $G/\Gamma$ . These trajectories correspond to points for which the conclusion of an appropriate version of Dirichlet's theorem can be infinitely improved. (Received January 26, 2018)