

**Yves Benoist**

Title: Invariant subsets of finite volume homogeneous spaces

Abstract: Let  $X$  be a finite volume quotient of a connected semisimple Lie group  $G$  with no compact factor and  $H$  be a Zariski dense subgroup of  $G$ . We prove that every  $H$ -orbit closure is an orbit under a larger group. For that we classify the probability measures on  $X$  which are stationary under a probability measure on  $G$  whose support is compact and spans  $H$ : the ergodic ones are homogeneous under a larger group. This is joint work with Jean-Francois Quint.