Density of translates in weighted $L^p$ spaces on locally compact groups

Let $G$ be a locally compact group, and let $1 \leq p < \infty$. Consider the weighted $L^p$-space
$$L^p(G, \omega) = \{ f : \int |f| \omega^p < \infty \},$$
where $\omega : G \to \mathbb{R}$ is a positive measurable function. Under appropriate conditions on $\omega$, $G$ acts on $L^p(G, \omega)$ by translations. When is this action hypercyclic, that is, there is a function in this space such that the set of all its translations is dense in $L^p(G, \omega)$? H. Salas (1995) gave a criterion of hypercyclicity in the case $G = \mathbb{Z}$. Under mild assumptions, we present a corresponding characterization for a general locally compact group $G$. Our results are obtained in a more general setting when the translations only by a subset $S \subset G$ are considered.

Joint work with E. Abakumov (Paris-Est).

Presenter(s) : Dr KUZNETSOVA, Yulia (Université de Bourgogne Franche Comté)