1176-37-38 **John T. Griesmer***, jtgriesmer@gmail.com. *Special cases and equivalent forms of Katznelson's problem on recurrence.*

We say $S \subseteq \mathbb{Z}$ is a *set of topological recurrence* if for every minimal topological dynamical system (X, T) on a compact metric space X and every nonempty open $U \subseteq X$, we have $U \cap T^{-n}U \neq \varnothing$ for some $n \in S$. We say that S is a *set of Bohr recurrence* if for every minimal group rotation system (K, R) on a compact metric abelian group K and every nonempty open $U \subseteq K$, there exists $n \in S$ such that $U \cap R^{-n}U \neq \varnothing$. These definitions make it clear that every set of topological recurrence is a set of Bohr recurrence, and Katznelson's problem asks whether every set of Bohr recurrence is a set of topological recurrence. In this talk we will consider interesting sets of Bohr recurrence which are not known to be sets of topological recurrence, such as $\{2 \cdot 7^{n+2d} - 7^{n+d} - 7^n : n, d \in \mathbb{N}\}$. We will also reduce the general problem to an appealing special case. (Received January 06, 2022)