On self-similarities of ergodic flows

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Given an ergodic flow $T=(T_t)_{t\in\Bbb R}$, let $I(T)$ be the set of reals $s\ne 0$ for which the flows $(T_{st})_{t\in\Bbb R}$ and T are isomorphic. It is proved that $I(T)$ is a Borel subset of $\Bbb R^*$. It carries a natural Polish group topology which is stronger than the topology induced from $\Bbb R$. There exists a mixing flow T such that $I(T)$ is an uncountable meager subset of $\Bbb R^*$. For a generic flow T, the transformations T_{t_1} and T_{t_2} are spectrally disjoint whenever $|t_1|\ne |t_2|$. A generic transformation (i) embeds into a flow T with $I(T)=\{1\}$ and (ii) does not embed into a flow with $I(T)\ne \{1\}$. For each countable multiplicative subgroup $S\subset\Bbb R^*$, it is constructed a Poisson suspension flow T with simple spectrum such that $I(T)=S$. If S is without rational relations then there is a rank-one weakly mixing rigid flow T with $I(T)=S$.

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