A GENERALIZATION OF KAWADA AND ITÔ'S THEOREM

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Abstract: For a locally compact group G, a continuous automorphism T, and a probability measure λ on G the sequence given by $\varrho_n := \lambda T(\lambda) \ldots T^{n-1}(\lambda)$ is considered. Under the assumption that the set $\{T^{-n} : n \in N\}$ is equicontinuous it is shown that $(\varrho_n)_{n \in N}$ converges, and then necessarily to an idempotent probability measure, if and only if the support of λ is not contained in a proper coset $Hx = xT(H) \neq H$ of a compact subgroup H of G and the support of λ is contained in a compact T-invariant subgroup of G.

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