

TITLE: Compatible group topologies on a locally quasi-convex abelian group and the Mackey group problem

ABSTRACT: For a locally quasi-convex (lqc) abelian group G , we describe all compatible lqc group topologies on G and apply this result to the Mackey group problem for lqc groups. We characterize lqc abelian groups which are Mackey groups or admit a Mackey group topology and provide a characterization of two Mackey groups whose product is Mackey. We characterize locally convex spaces which are Mackey groups.