

On quasi-convex null sequences

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Quasi-convex sets in Abelian topological groups play an important role, comparable with convex sets in topological vector spaces. It is a consequence of the Hahn–Banach theorem that a symmetric, closed, convex set in a real locally convex vector space is a quasi-convex subset of the underlying topological group. So it is possible to find quasi-convex sets of cardinality $\geq c$. On the other hand, there exist finite quasi-convex sets.

In this talk we will present known and new results on Abelian topological groups which admit a non-trivial quasi-convex null sequence.

Given an Abelian topological group (G, τ) and a quasi-convex null sequence N in the dual group $(G, \tau)^\wedge$ one can ask whether the topology of uniform convergence on N is compatible with τ . This question is of importance when the Mackey topology on a group, i.e. the finest locally quasi-convex group topology on G giving rise to $(G, \tau)^\wedge$, is studied.

