



ITES2007 Sixth Italian-Spanish conference
on General Topology and applications

Bressanone, 26-29 June 2007

Small essential pseudocompact subgroups of compact groups

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A subgroup H of a topological group G is *small* if $|H| < |G|$. Moreover H is *strongly totally dense* in G if H densely intersects each non-trivial closed subgroup of G . In 1985 Comfort and Robertson proved that ZFC cannot decide whether there exists a compact group with small strongly totally dense pseudocompact subgroups. A subgroup H of a topological group G is *essential* in G if H non-trivially intersects each non-trivial closed normal subgroup of G . We prove that ZFC cannot decide whether there exists a compact abelian group with small (dense) essential pseudocompact subgroups. Moreover we discuss the non-abelian case.