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The fixed point on compacta property of some topological groups related to operator algebras and ergodic theory

A topological group G has the fixed point on compacta (f.p.c.) property if there is a fixed point in each compact space upon which G acts continuously. This is a very strong version of amenability, which is why such groups are also called extremely amenable. The property is closely linked to Ramsey theory and to geometry of high-dimensional structures. Among a number of known groups with the f.p.c. property, many are linked to operator algebras and ergodic theory, and we will dwell on some of the recent developments in this direction.