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Property (T) for uniformly convex uniformly smooth Banach spaces

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Abstract

A finitely generated group has property (T) if every unitary representation of the group which “almost” has invariant vectors has a non-zero invariant vector. Property (T), discovered in 1967 by D. Kazhdan, is a powerful tool, with applications, for instance, in rigidity, geometry, graph theory, and operator algebras. A. Żuk gives a sufficient condition for a finitely generated group to have property (T) [1]. The condition is given

in terms of the smallest non-zero eigenvalue of a discrete Laplace operator acting on functions on a generating set.

I present a result which generalizes that of Żuk to linear isometric representations of finitely generated groups on uniformly convex uniformly smooth Banach spaces.

[1] A. Żuk, Property (T) and Kazhdan constants for discrete groups, *Geom. Funct. Anal.*,13 (2003), 643—670.
