Seminarium geometrów

EXPANDERS AND K-THEORY FOR GROUP C^* ALGEBRAS

Paul Frank Baum (PSU)

Abstract: Let G be a locally compact Hausdorff topological group. Examples are Lie groups, p–adic groups, adelic groups, and discrete groups. The BC (Baum-Connes) conjecture proposes an answer to the problem of calculating the K-theory of the convolution C^* algebra of G. Validity of the conjecture has implications in several different areas of mathematics. — e.g. Novikov conjecture, Gromov-Lawson-Rosenberg conjecture, Dirac exhaustion of the discrete series, Kadison-Kaplansky conjecture. An expander is a sequence $X_1, X_2, X_3, \ldots$ of finite graphs which is efficiently connected. Any discrete group which contains an expander as a sub-graph of its Cayley graph is a counter-example to the BC conjecture with coefficients. Such discrete groups have been constructed by Gromov-Arjantseva-Delzant and by Damian Osajda. This talk will indicate how to make a correction in BC with coefficients. There are no known counter-examples to the corrected conjecture, and all previously known confirming examples remain confirming examples.