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UNIVERSITÄT BERN

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Mathematical Colloquia

Monday, 30 May 2022

17:15 h, lecture room B6 (ExWi)

Dr. Rob Eggermont, TU Eindhoven

Quasi-homomorphisms from the integers into Hamming metrics

Abstract: A function f: Z -> Qⁿ is a c-quasihomomorphism if for all x, y in Z the Hamming distance between f(x+y) and f(x) + f(y), i.e. the number of entries i in {1,2,...,n} for which the i-th entry of f(x+y) does not equal the i-th entry of f(x) + f(y), is at most c.

A 0-quasihomomorphism is simply a (group) homomorphism from Z to Q^n. We are interested to see whether, when given a c-quasihomomorphism f, there is a homomorphism g such that for all x in Z the Hamming distance between f(x) and g(x) is bounded by some function C(c) independent of n and our choice of f. We will use combinatorial methods to answer this question, which will prove a special case of a question posed by Kazhdan and Ziegler.