

DISCREPANCY AND EIGENVALUES OF CAYLEY GRAPHS

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We consider *quasirandom* properties for *Cayley graphs* of finite abelian groups. We show that having uniform edge-distribution (*i.e.*, small discrepancy) and having large eigenvalue gap are equivalent properties for Cayley graphs, even if they are *sparse*. This answers positively a question of Chung and Graham [“Sparse quasi-random graphs”, *Combinatorica* **22** (2002), no. 2, 217–244] for the particular case of Cayley graphs, while in general the answer is negative.

This is joint work with Yoshiharu Kohayakawa (USP) and Vojtěch Rödl (Emory).