

Recursion Code.

David Ponarovsky

February 23, 2023

Abstract

None

1 Construction.

Definition 1. Let Δ be an integer greater than 2 and consider an algorithm \mathcal{A} that for any n that is power of 3 construct a Δ -regular graph over n vertices. Now, let G be Δ -regular graph over n vertices generated by \mathcal{A} . Define the **third graph obtained by G** , labeled by G^\sim to be the graph which \mathcal{A} returns over $\frac{1}{3}n$ such that any of the edges could be associate by puncturing a $\frac{2}{3}$ fraction of the edges of each vertex.

The Code. Let $C(\frac{1}{2}\Delta n)$ be the code defined by the joining the parity check matrix of a Tanner code over Δ -regular graph and