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Patrick Bahls* (pbahls@unca.edu), CPO #2350, One University Heights, UNCA Department of Mathematics, Asheville, NC 28804-8511. *Connectivity of a family of expanders*. Preliminary report.

We investigate the connectivity properties of an explicit family of expanders, a collection of 3-regular graphs defined on the vertex sets Z_p , p any prime. In particular, we show that, not surprisingly, the average connectivity $\bar{\kappa}$ (as defined by Beineke, Oellermann, and Pippert) of such a graph tends to 3 as $p \rightarrow \infty$, further justifying the claim that such graphs are “well-connected.” This limiting value is contrasted with the expected value of $\bar{\kappa}$ for a more general class of related graphs. The proofs will employ elementary number theory and probabilistic methods. (Received August 10, 2007)