Title: Nowhere-zero $\mathbb{Z}_3$-flows through $\mathbb{Z}_3$-connectivity

Abstract

Let $\Gamma$ be an abelian group. Jaeger, et al (J. of Combi. Theory Ser. B, 1992) introduced a class of graphs which they call $\Gamma$-connected. The main interest in $\Gamma$-connected graphs is that every $\Gamma$-connected graph admits a nowhere-zero $\Gamma$-flow. We found some families of $\mathbb{Z}_3$-connected graphs. Our results generalize an early theorem by Lai (J. of Graph Theory, 2003) for nowhere-zero $\mathbb{Z}_3$-flows in locally connected graphs, and provide a simplified proof of a theorem of Xu and Zhang on nowhere-zero $\mathbb{Z}_3$-flows in squares of graphs. This is a joint work with Matt DeVos (Princeton) and Gexin Yu (UIUC), and it is just accepted for publication in Discrete Mathematics.

All are welcome.