

3-flows for 6-edge-connected graphs

Cun-Quan Zhang

West Virginia University, Morgantown, WV 26506-6310, USA.

It was conjectured by Tutte (1970's) that every 4-edge connected graph admits a nowhere-zero 3-flow. Jaeger, Linial, Payan and Tarsi (1992 JCTB) further conjectured that every 5-edge-connected graph is Z_3 -connected. A weak version of the 3-flow conjecture was proposed by Jaeger (1979) that there is an integer h such that every h -edge-connected graph admits a nowhere-zero 3-flow. Thomassen (JCTB to appear) recently solved this open problem by proving that every 8-edge-connected graph is Z_3 -connected and admits a nowhere-zero 3-flow. In this paper, Thomassen's result is further improved that *every 6-edge-connected graph is Z_3 -connected and admits a nowhere-zero 3-flow*. Note that it was proved by Kochol (2001 JCTB) that it suffices to prove the 3-flow conjecture for 5-edge-connected graphs. (Joint work with C. Thomassen, Y. Wu)