

Combinatorics Seminar

Wednesday, October 23rd, 2024

4:00-5:00 pm in Hume 321

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Chords of longest cycles passing through a specified small set

Abstract

A long-standing conjecture of Thomassen says that every longest cycle of a 3-connected graph has a chord. Thomassen (2018) proved that if G is 2-connected and cubic, then any longest cycle must have a chord. He also showed that if G is a 3-connected graph with minimum degree at least 4, then some of the longest cycles in G must have a chord. Zhang (1987) proved that if G is a 3-connected simple planar graph which is 3-regular or has minimum degree at least 4, then every longest cycle of G must have a chord. Recently, Li and Liu showed that if G is a 2-connected cubic graph and x, y are two distinct vertices of G , then every longest (x, y) -path of G contains at least one internal vertex whose neighbors are all in the path. In this paper, we study chords of longest cycles passing through a specified small set and generalize Thomassen's and Zhang's above results. We also extend the above-mentioned result of Li and Liu for 2-connected cubic graphs. This is joint work with Haidong Wu.