

# Every 4-connected line graph of a quasi-claw-free graph is hamiltonian connected

Mingquan Zhan  
Millersville University

## Abstract

Let  $G$  be a graph. For any two distinct vertices  $x$  and  $y$  in  $G$ , denote  $dist_G(x, y)$  the distance in  $G$  from  $x$  and  $y$ . For  $u, v \in V(G)$  with  $dist_G(u, v) = 2$ , denote  $J_G(u, v) = \{w \in N_G(u) \cap N_G(v) | N(w) \subseteq N[u] \cup N[v]\}$ . A graph  $G$  is **claw-free** if it contains no induced subgraph isomorphic to  $K_{1,3}$ . A graph  $G$  is called **quasi-claw-free** if  $J_G(u, v) \neq \emptyset$  for any  $u, v \in V(G)$  with  $dist_G(u, v) = 2$ . Kriesell's result in that every 4-connected line graph of a claw-free graph is hamiltonian connected. In this paper we show that every 4-connected line graph of a quasi claw-free graph is hamiltonian connected. This is joint work with Hong-Jian Lai and Yehong Shao.