

# Game Chromatic Index of Graphs with Given Restrictions on Degrees

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Given a graph  $G$  and an integer  $k$ , two players alternatively color the edges of  $G$  using  $k$  colors so that adjacent edges get different colors. The *game chromatic index*  $\chi'_g(G)$  is the minimum  $k$  for which the first player has a strategy that ensures that all edges of  $G$  get colored.

Lam, Shiu, and Xu and, independently, Bartnicki and Grytczuk asked whether there is a constant  $C$  such that  $\chi'_g(G) \leq \Delta(G) + C$  for every graph  $G$ . We show that the answer is in the negative. Also, general upper bounds on  $\chi'(G)$  in terms of  $\Delta(G)$  and  $v(G)$  will be discussed.

This is a joint work with Andrew Beveridge, Tom Bohman, and Alan Frieze.