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The game chromatic index of trees.

The (r, d) -relaxed edge-coloring game is a two-player game played on the edge set of a graph G with r colors. The players alternate coloring the uncolored edges of G such that every colored edge e is adjacent to at most d edges with the same color as e . The first player begins the game and wins if the graph is eventually colored with r colors. Otherwise, there is some edge that cannot be colored and the second player wins. We consider this game on trees and show that, for any tree T and $k \in [\Delta(T) - 1]$, the first player has a winning strategy when $r = \Delta(T) - k$ and $d \geq 2k + 2$. (Received September 07, 2009)