On independent domination of cubic graphs without 4-cycles

A dominating set of a graph G is a set S of vertices such that each vertex not in S is adjacent to some vertex in S. The independent domination number of a graph G, denoted $i(G)$, is the minimum cardinality of a dominating set of G which is also independent. In 2018, Abrishami and Henning showed that $i(G) \leq \frac{4}{11}|V(G)|$ for every cubic graph G with girth at least 6.

In this talk, we present a result on the independent domination number of a cubic graph, which implies the aforementioned result. More precisely, we prove that if G is a cubic graph without 4-cycles, then $i(G) \leq \frac{5}{14}|V(G)|$, and the bound is tight. This is based on joint work with Eun-Kyung Cho, Ilkyoo Choi and Boram Park.

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