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On clique immersions in line graphs

In this talk we will discuss the immersion relation on graphs. This relation is similar but incomparable to the well-known minor relation. We will explore the relationship between coloring and such containment relations. In particular, we prove that if $L(G)$ immerses K_t then $L(mG)$ immerses K_{mt} , where mG is the graph obtained from G by replacing each edge in G with a parallel edge of multiplicity m . We also show that when G is a line graph, G has a K_t -immersion iff G has a K_t -minor whenever $t \leq 4$. This equivalence fails in both directions when $t \geq 5$.