

TRAILS IN ARC-COLORED DIGRAPHS WITH RESTRICTION IN THE COLOR TRANSITIONS

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Edge-colored (di)graphs have shown to be very useful for modeling problems in many areas, e.g., molecular biology, physical sciences, social science, among others. In particular, walks with a specific color pattern (such as, properly colored, monochromatic or rainbow) have been essential to solve these problems.

Let D be a digraph without loops, and H a digraph possibly with loops. Consider the following arc-coloring of D : An H -coloring of D is a function $c : A(D) \rightarrow V(H)$. We say that D is an H -colored digraph whenever we are taking a fixed H -coloring of D . A trail $W = (v_0, e_0, v_1, e_1, v_2, \dots, v_{n-1}, e_{n-1}, v_n)$ in D is an H -trail iff $(c(e_i), c(e_{i+1}))$ is an arc in H , for each $i \in \{0, \dots, n-2\}$. In this talk we will discuss the existence of eulerian H -trails and deal with the complexity of finding $s - t$ H -trails/ H -paths in H -colored digraphs.