

Dynamic paths and cycles in H -colored multigraphs

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Let H be a graph possibly with loops and G be a multigraph without loops. An H -coloring of G is a function $c : E(G) \rightarrow V(H)$. We will say that G is an H -colored multigraph, whenever we are taking a fixed H -coloring of G .

In this talk, we will introduce the concept of dynamic H -walks and study the existence and length of dynamic H -cycles, dynamic H -trails and dynamic H -paths in H -colored multigraphs. To accomplish this, we will introduce a new concept of color degree, namely, the *dynamic degree*, which allows us to extend some classic results, as the so celebrated Ore's Theorem, for H -colored multigraphs. Also, we will give sufficient conditions for the existence of hamiltonian dynamic H -cycles in H -colored multigraphs, and as a consequence, we obtain sufficient conditions for the existence of properly colored hamiltonian cycle in edge-colored multigraphs, with at least $c \geq 3$ colors.