Graph Theory: Lecture No. 22

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Colouring of Digraphs: Gallai-Roy Theorem: Every digraph $D$ contains a directed path with $\chi$ vertices.
Acyclic Vertex Coloring: Color the vertices of $G$ such that the coloring is proper and there exists no bichromatic cycles. The minimum number of colors required is known as the acyclic chromatic number, denoted as $a(G)$. 
Acyclic Edge Coloring: Color the edges of the graph such that it is proper and there exists no bichromatic cycles. The minimum number of colors required to achieve such a coloring is known as the acyclic chromatic index $a'(G)$. 
Every $k$-chromatic graph has a $K_k$ minor.
A stronger Conjecture was proposed by G. Hajós, namely every $k$-chromatic graph has a subdivision of $K_k$. But this conjecture was disproved by Catlin.