Maximal Edge-colorings of Graphs

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(joint work with Mariusz Meszka)

Maximal edge-coloring of a graph G of order n is a proper edge-coloring of a graph G with $\chi'(K_n)$ colors such that no edge of $\overline{G}$ can be attached to G without violating the conditions of proper edge-coloring. We define the spectrum of maximal edge-coloring $MEC(n) = \{m :$ there exists a maximal edge-coloring of G such that $|V(G)| = n$, $|E(G)| = m\}$. In the talk we present the lower bound for the spectrum. We also show constructions of such colorings. Thus the spectrum is almost completely determined.