Variations on a theme by Brooks

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Streszczenie

Brooks' theorem is a classic result in graph coloring. It asserts that a connected graph of maximum degree at most k is k-colorable, unless it is a clique or an odd cycle. Several different proofs of this theorem are known, perhaps the most elegant due to Lovasz. I will present a new simple proof of Brooks' theorem found recently by Zając. Its basic idea is similar to that of Lovasz, though connectivity issues are completely avoided. Also, the argument can be easily extended to some known generalizations of Brooks' theorem, including recent results for signed graphs and more general correspondence coloring (known also as DP-coloring).