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Randomly colouring graphs (a combinatorial view). (English) Zbl 1302.05060

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Summary: The application of the probabilistic method to graph colouring has been yielding interesting results for more than 40 years. Several probabilistic tools are presented in this survey, ranging from the basic to the more advanced. For each of them, an application to a graph colouring problem is presented in detail. In this way, not only is the general idea of the method exposed, but also are the concrete details arising with its application. Further, this allows us to introduce some important variants of the usual graph colouring notion (with some related open questions), and at the same time to illustrate the variety of the probabilistic technics. The survey tries to be self-contained.

MSC:

05C15 Coloring of graphs and hypergraphs

05C80 Random graphs (graph-theoretic aspects)

05-02 Research exposition (monographs, survey articles) pertaining to combinatorics

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