

# Random greedy coloring of uniform hypergraphs

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The smallest number of edges forming an  $n$ -uniform hypergraph which is not two colorable is denoted by  $m(n)$ . Erdős and Lovász conjectured that  $m(n) = \theta(n2^n)$ . The best known lower bound  $m(n) = \Omega\left(\sqrt{n/\log n}2^n\right)$  was obtained by Radhakrishnan and Srinivasan in 2000. I will present a simple proof of their result. The proof is based on analysis of random greedy coloring algorithm investigated by Pluhár in 2009. I will also discuss applications of the method to several other extremal problems of hypergraph coloring.