A New Lower Bound for the Threshold of the Random 3-SAT Model

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Abstract: In this report, we will introduce our recent work on the Random 3-SAT model. Actually, we prove that a random 3-SAT formulate with clause to variables ratio less than 2.793 is satisfiable with high probability. Our result comes from the second moment method, with changes of measure and optimization. It is believed that the threshold of the random 3-SAT model is near 4.2, and the former best lower bound is 2.68 given in [1].

Reference

[1] D. Achlioptas and Y. Peres (2004): *The Threshold for Random k-SAT is* $2^k \log 2 - O(k)$*;* Journal of the American Mathematical Society, Vol 17, No. 4, pp 947-973