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Vladimir Nikiforov* (vnikifrv@memphis.edu). *The number of cliques in graphs of given order and size.*

Let $k_r(n, m)$ denote the minimum number of r -cliques in graphs with n vertices and m edges. Recently Razborov found $k_3(n, m)$ asymptotically. This talk presents a lower bound on $k_4(n, m)$ that approximates $k_4(n, m)$ with an error smaller than $n^4/(n^2 - 2m)$. The solution is based on a constraint minimization of certain multilinear forms. (Received September 16, 2008)