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Alexander Barvinok* (barvinok@umich.edu), 2074 East Hall, 530 Church Street, Ann Arbor, MI 48019-1043. *Computing permanents of complex diagonally dominated matrices and tensors.*

We prove that for any $\lambda > 1$, fixed in advance, the permanent of an $n \times n$ complex matrix, where the absolute value of each diagonal entry is at least λ times bigger than the sum of the absolute values of all other entries in the same row, can be approximated within any relative error $0 < \epsilon < 1$ in quasi-polynomial $n^{O(\ln n - \ln \epsilon)}$ time. We extend this result to multidimensional permanents of tensors and apply it to weighted counting of perfect matchings in hypergraphs. (Received February 07, 2018)