

# A Polynomial Column-wise Rescaling von Neumann Algorithm

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## **Abstract:**

Recently simple algorithms, like the Perceptron algorithm, the von Neumann Algorithm, the relaxation method re-gained considerable interest. A few years ago Chubanov proposed a method which solves homogeneous linear equality systems with positive variables in polynomial time. Chubanov's method can be considered as a column-wise rescaling procedure. We adapt Chubanov's method to the von Neumann problem, and so we design a polynomial time column-wise rescaling von Neumann algorithm. This algorithm is the first variant of the von Neumann algorithm with polynomial complexity. Finally, some possible implications of the result will be discussed.