

**DIAGONALLY DOMINANT MATRICES:  
THEIR INVERTIBILITY FROM PROBABILISTIC VIEW POINT**

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Gersgorin theorem says that the eigenvalues of finite matrices lie on the so called Gersgorin region in the complex plane. This theorem implies in particular that if a matrix is strictly diagonally dominant, then it is invertible. Taussky improves: if a matrix is irreducibly diagonally dominant, then it is invertible (quite long time ago, in 1949!).

In this talk, we discuss this problem in probabilistic way. We introduce a Markov process from the given diagonally dominant matrix. Then by using Feynman-Kac formula and large deviation principle, we can bound the components of the inverse.