

Futamura, Yasunori; Tadano, Hiroto; Sakurai, Tetsuya

Parallel stochastic estimation method of eigenvalue distribution. (English) Zbl 1271.65063
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Summary: Some kinds of eigensolvers for large sparse matrices require specification of parameters that are based on rough estimates of the desired eigenvalues. In this paper, we propose a stochastic estimation method of eigenvalue distribution using the combination of a stochastic estimator of the matrix trace and contour integrations. The proposed method can be easily parallelized and applied to matrices for which factorization is infeasible. Numerical experiments are executed to show that the method can perform rough estimates at a low computational cost.

MSC:

[65F15](#) Numerical computation of eigenvalues and eigenvectors of matrices
[65F50](#) Computational methods for sparse matrices
[65Y05](#) Parallel numerical computation

Cited in **8** Documents

Keywords:

[contour integration](#); [stochastic estimation](#); [parallel computation](#); [large sparse matrices](#); [eigenvalues](#); [numerical experiments](#)

Software:

[MatrixMarket](#); [zPARES](#)

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